

Bridge Navigational Watch Alarm System
acc. MSC .128/75 & IEC 62616

*le guardian 2025
user manual*



*operating device
LOD 210.24.0.0
with display, key switch & rotary
encoder w. push button*



*connecting module
LCM 210.24.0.0*



*NMEA Expansion Module
NMEA 210.24.0.0*

Inhalt

1	Instruction for use	3
2	Installation	4
3	Commissioning.....	6
4	Test mode - maintenance & service (service menu #1)	9
5	Trouble shooting	13
6	Centralized dimmer	15
7	Adjust time period of alarm stage 2 (alarm in officer's area)	16
8	Adjust buzzer characteristics & volume	18
9	service menu overview.....	20
10	Technical data and schematics	21
11	NMEA expansion module	48
11.1	NMEA expansion module installation.....	49
11.2	NMEA expansion module commissioning	50
11.2.1	Enabling NMEA expansion module (service menu #5)	50
11.2.2	Define quantity of involved back-up OOW cabins (service menu #2).....	52
11.2.3	Define relation between cabin number and real cabin location	54
11.2.4	Enabling / disabling alarm transfer channel(s) and time delay adjust for alarm transfer (service menu #3).....	55
11.2.	Transmit NMEA sentences to external systems (especially VDR).....	57
11.3.	Receive NMEA sentences from external systems	59
12	user manual short version (for users only).....	62
12.1.0	Generals.....	62
12.1.1	Installation	63
12.2.1	Manual switch on.....	63
12.2.2	Automatically switch on	64
12.3.0	Select dormant (main) period.....	64
12.3.1	Reset of dormant (main) period.....	64
12.3.2	Alert sequences start automatically.....	65
12.3.2.1	visual alarm indications (pre-alarm)	65
12.3.2.2	Alarm stage 1.....	65
12.3.2.3	Alarm stage 2.....	66
12.3.2.4	Alarm stage 3.....	66
12.4.1	Back-up OOW's selection & indication.....	67
12.5.1	Emergency call	69
12.6.1	System shut down	70

1 Instruction for use

le guardian 2025 and its extension devices (time period reset units, alarm devices) must only be installed by trained electricians or other persons who are familiar with installation of electric equipment.

Parts of the system can be damaged and persons put at risk if system is connected incorrectly.

Connecting module (LCM 210.24.0.0) and NMEA expansion module (NMEA 210.24.0.0) are designed to be installed in an enclosure switch cabinet or control console. For service and commissioning work connecting and expansion modules should be installed in such manner, service personnel is able to see state LEDs on modules.

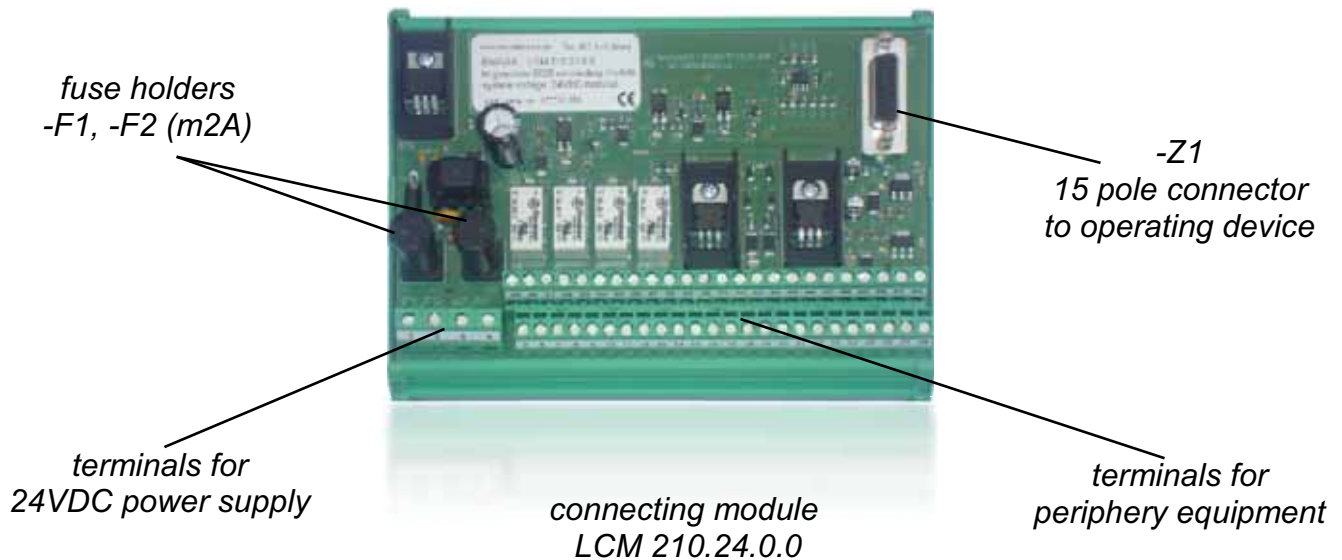
Operating device (LOD 210.24.0.0) is designed to be installed on control console.

Operating device and all time period reset units have to be installed only at locations on bridge or bridge wings where OOW has a proper look out.

Installation must conform to regulations for electromagnetic compatibility (EMC). (see chapter technical data & schematics)

2 Installation

Connecting module (LCM 210.24.0.0) and its extension devices (time period reset units, alarm devices) have to be connected according to corresponding wiring diagrams.



description

connecting module (LCM 210.24.0.0)

Module has been designed to click on terminal rail TS 35 inside electric cabinet or control console. All periphery equipment (time period reset units, alarm panels, power supply) is to be connected directly on connecting module without any additional terminal board or distribution boxes according to wiring diagram which is part of working drawings. Sample system wiring diagram is shown in chapter "technical data & schematics".

Outputs for "power on" indication and time period reset push button illumination are short-cut protected. Maximum loads of outputs and output contacts see chapter "technical data & schematics".



operating device (LOD 210.24.0.0)

Before mounting operating device into cut-out, plug on 15-pole system cable on device's rear side and tighten it properly. Use device clamps to fix device in proper manner.

Do not use longer system cable as standard length: l=3m!

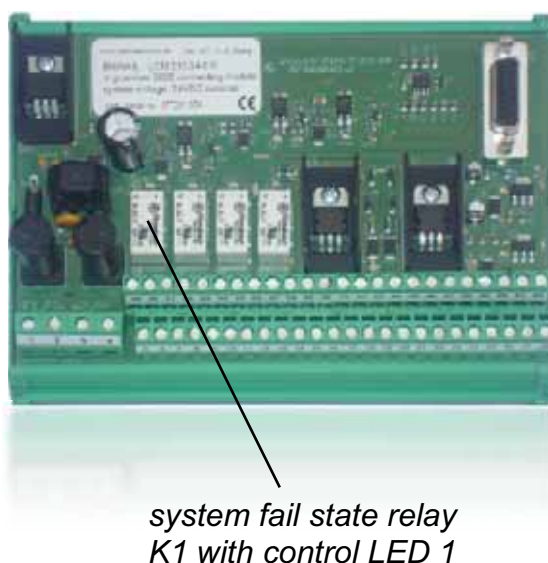
Plug on 15-pole system cable on connecting module LCM 210.24.0.0 (-Z1) and tighten it properly.

After connecting all additional equipment (time period reset units, alarm devices) according to corresponding wiring diagram, system is ready for operating.

3 Commissioning

Before switching on 24VDC (nominal) power supply to connecting module LCM 210.24.0.0 terminal board –X1: 1, 2 (+) & 3, 4 (-) make sure power supply, time period reset units and external alarm devices have been connected correctly according to wiring diagram.

Diode on LCM 210.24.0.0 connecting module secures system against wrong power supply polarity.



After switching on 24VDC power supply (generally from 24VDC Emergency Distribution Board) system fail state relay K1 is activated and display on operating device LOD 210.24.0.0 shows “text 1” after a short intro procedure.

In case of system fail, relay K1 is not activated (control LED 1 is switched off). When system is running properly, relay K1 is triggered and its potential free contact is closed (-X1: 5, 6)

Make sure that up to now no external “power on” contact (steady contact: - X1:29, 30 and pulsed contact: -X1: 26, 27 & 50, 51) is active.

display „text 1“

**READY FOR
POWER ON / AUTO**

System is running now and is waiting for user’s operation on operating device LOD 210.24.0.0 or for an external “power on” command. Display shows “text1”.

Switch on system by turning key switch S1 on operating device LOD 210.24.0.0 one time to position "ON/OFF"

After system is switched on default dormant period (3:00min) is counting down and display shows current state of count-down (display "text 3").



Test of external illuminated time period reset unit:

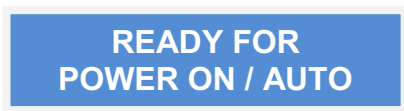
In this "count-down mode" all illuminated time period reset units are activated. Illumination of display and of reset units is adjustable by turning rotary encoder. Minimum illumination is fixed.

Now push external reset units (one by one) and check 2nd line of display (current value). Every reset should restart count-down (2:59).

Test of external “power on” devices: (optional)

In case external “power on” devices are involved, activate these devices (one by one). Make sure before, display “text 1” is shown. Only in this “auto mode” an external “power on” is possible.

display „text 1“



notice:

Every switching on (from operating device LOD 210.24.0.0 or from external devices) restarts count-down!

Test of external alarm devices and links

For checking alarm devices (external buzzers on bridge or bridge wing area, alarm panels in officer's area, link to general alarm system, link to VDR system and system failure contact see chapter 4 “test mode” (maintenance & service)

For finishing commissioning procedure “switch off” system by turning key switch S1 on operating device LOD 210.24.0.0 to position “ON/OFF” for longer than 2 sec.

Display shuts down and system ignores all external inputs now.

*system is
shut down*



4 Test mode - maintenance & service (service menu #1)

le guardian ²⁰²⁵ Bridge Navigational Watch Alarm System owns a test mode procedure to check all output relevant devices (alarm panels, external buzzers, links to alarm devices, links to VDR and system failure contact) in a very comfortable manner.

To reach this “service mode 1” an authorized person has to “switch off” system by turning key switch S1 on operating device LOD 210.24.0.0 to position “ON/OFF” for longer than 2 sec. System shuts down. After that authorized person has to keep pushing rotary encoder push button S2 and after a period between 2 and 3 sec he has to “switch on” system by turning key switch S1 on operating device LOD 210.24.0.0 one time to position “ON/OFF”



System starts in “service mode” and display is showing “text 4”

display „text 4“

**TEST MODE 1 OFF
ALARM on BRIDGE**

By pushing rotary encoder’s push button S2 for one time, all internal and external bridge area alarm devices (alarm stage 1) are activated as long as push button S2 is pushed again. During this manual alarm activation, display is showing “text 5”.

display „text 5“

**TEST MODE 1 ON
ALARM on BRIDGE**

After a.m. test in “test mode 1” is done, user has to turn rotary encoder clockwise to reach “test mode 2”.

display „text 6“

**TEST MODE 2 OFF
OFFICERs ALARM**

Display is showing “text 6” and after pushing rotary encoder’s push button S2 for one time, all alarm devices in officer’s area (alarm stage 2) and link to VDR system (optional) are activated as long as push button is pushed again.

During this manual alarm activation, display is showing “text 7”.

display „text 7“

**TEST MODE 2 ON
OFFICERs ALARM**

After a.m. test in “test mode 2” is done, user has to turn rotary encoder clockwise to reach “test mode 3”.

display „text 8“

**TEST MODE 3 OFF
ALARM STAGE 3**

Display is showing “text 8” and after pushing rotary encoder’s push button S2 for one time, system’s contact is activating very loud alarm devices in officer’s area (alarm stage 3) and link to VDR system (optional) as long as push button is pushed again.

During this manual alarm activation, display is showing “text 9”.

display „text 9“

**TEST MODE 3 ON
ALARM STAGE 3**

After a.m. test in “test mode 3” is done, user has to turn rotary encoder clockwise to reach “test mode 4”.

display „text 10“

**TEST MODE 4 OFF
DEVICE FAILURE**

Display is showing “text 10” and after pushing rotary encoder’s push button S2 for one time, device’s failure contact opens and activate linked alarm system as long as push button S2 is pushed again.

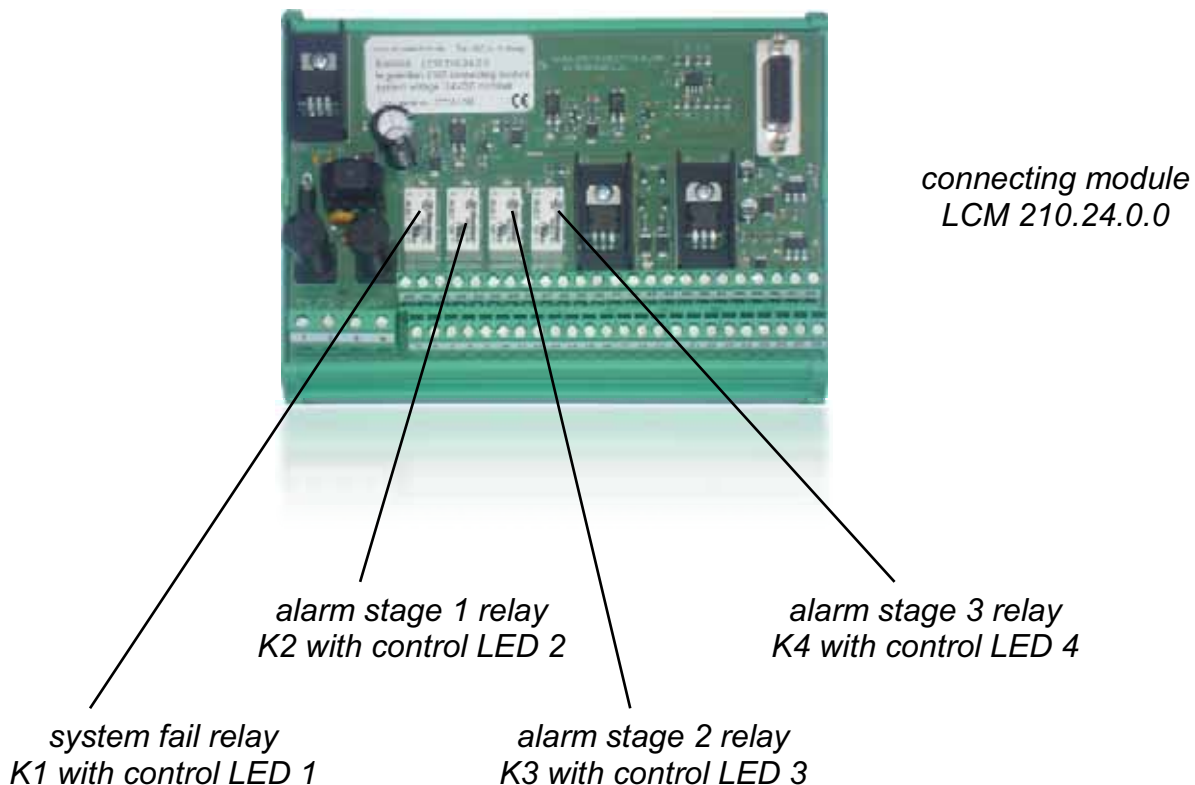
Consider possible alarm delay period created by linked alarm system!

During this manual alarm activation, display is showing “text 11”.

display „text 11“

**TEST MODE 4 ON
DEVICE FAILURE**

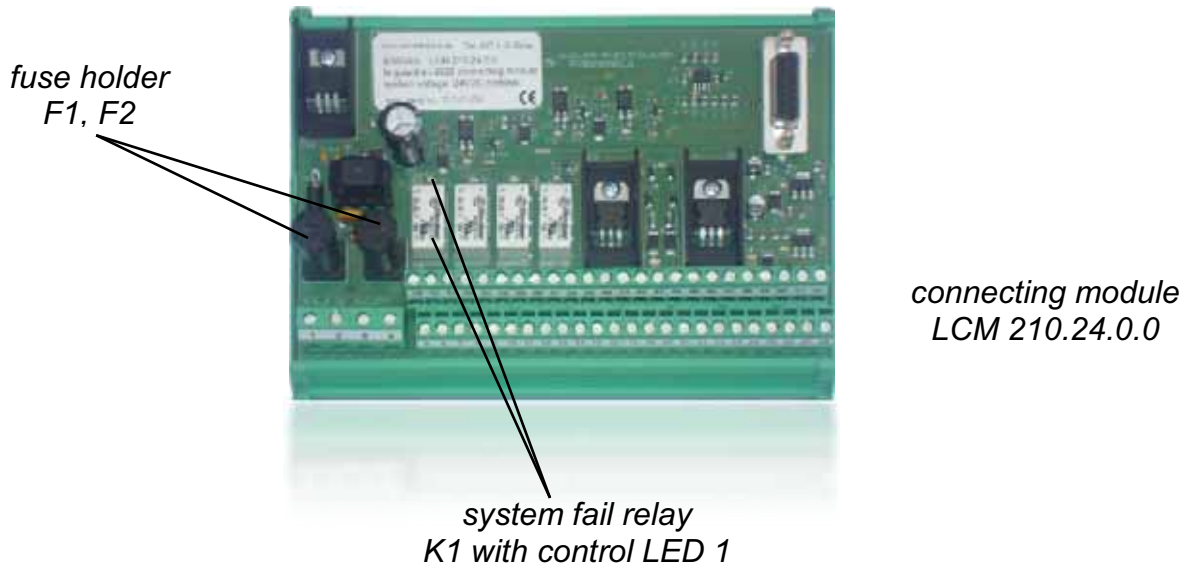
State of all output relays is shown by corresponding control LEDs. Consider reversed relay logic of system failure relay K1!



For finishing “test mode” procedure “switch off” system by turning key switch S1 on operating device LOD 210.24.0.0 to position “ON/OFF”.



5 Trouble shooting



system fail criteria

In following cases potential free (dry) n/o contact on connecting module LCM 210.24.0.0

–X1: 5, 6 opens (system fail state):

- power supply failed (or main power supply voltage is lower than 13,2V)
 - program cycle interrupted (risc controller has been stopped)
 - link with 15 pole system cable Z1 between operating device and connecting module is interrupted
 - in case NMEA expansion module is involved, when communication between operating device (LOD 210.24.0.0) and expansion module (NMEA 210.24.0.0) has been failed
- a) check supply voltage by comparing it with other systems fed from same distribution source.
- b) Switch off system's power supply for minimum 10 sec by opening fuse holder F1 or F2 on connecting module LCM 210.24.0.0. After switching on power supply, program will start automatically after 2 sec. in "normal mode".
- c) check system cable between connecting module LCM 210.24.0.0 and operating device LOD 210.24.0.0, especially system plug on operating device's rear side. Cable might be damaged.

System fail state is indicated when system fail relay K1 is not triggered (control LED D9 is off).

Notice:

In case that during watch operations system's power supply fails temporary (e.g. black-out situation) watch operations restart automatically with old settings (settings before power fail).

time period cannot reset, emergency call cannot reset

check all reset units if reset contact is closed permanently by switch's malfunction or accidental use.

No indication light is active (reset units & external "power on" devices)

Check if system is might be "switched off" by external system. Use key switch S1 on operating device LOD 210.24.0.0.

Notice:

time period reset unit illumination and external "power on" indication are active only, when count-down sequence is started.

If system works properly but without any indication, one bulb or LED in time period reset units or external "power on" devices might be blown in that way, causing a short-circuit. Replace damaged bulb / LED. Short-circuit does not damage system due to short-circuit protected transistor outputs.

6 Centralized dimmer

le guardian 2025 BNWAS is designed with a centralized dimmer function. That means all relevant illuminated time period reset units on bridge and bridge wing area as well as blue display on operating device LOD 210.24.0.0 are adjustable by turning rotary encoder S2 on operating device LOD 210.24.0.0. Minimum illumination is limited. Display's illumination and time period reset unit's illumination are synchronized.



By turning rotary encoder S2 on operating device LOD 210.24.0.0 in counter clock wise direction, illumination is decreasing. By turning rotary encoder S2 on operating device LOD 210.24.0.0 in clockwise direction, illumination is increasing.

Notice:

dimmer function is suppressed during any kind of settings changing procedure by using rotary encoder!

7 Adjust time period of alarm stage 2 (alarm in officer's area) (for authorized persons only)

IMO regulations allow (MSC 75/24/Add.1 ANNEX 11, 4.1.2.7) to increase standard setting of 90 sec of alarm stage 2 (alarm in officer's area). Compare with chapter 9 technical data and schematics (see watch alarm time table). Adjustment could be necessary due to large vessel or vessel's layout. Period can be adjusted to max. 180sec (default value is 90sec), to allow sufficient time for back-up officer and/or Master to reach bridge area before watch alarm system is triggering alarm stage 3.

Write down decided new value here:

new time period of alarm stage 2
[90sec.... 180sec]

date & sign

To adjust a.m. time period turn key switch S1 on operating device LOD 210.24.0.0 to position "SELECT".

*2x16 character
illuminated display*



*key switch
S1*

*rotary encoder incl.
push button S2*

*operating device
LOD 210.24.0.0*

After turning key switch S1 to position "SELECT" display is showing "text 3".

display „text 3“



Now push rotary encoder's push button S2 on operating device LOD 210.24.0.0 so often as display is showing "text 24".

display „text 24“



Now turn rotary encoder in clockwise direction to increase time period value or in counter-clock wise direction to decrease time period value. System allows only values between 90 and 180sec. By pushing rotary encoder's push button S2 on operating device LOD 210.24.0.0 display is changing and system accepts adjusted value.

8 Adjust buzzer characteristics & volume

le guardian 2025 system is designed with adjust mode to be able to change steady internal and external alert tone into 7 additional individual buzzer characteristics in case other systems on bridge area are generating a similar alert tone.

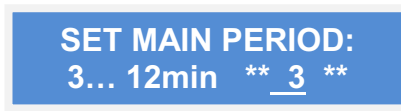
Adjust buzzer's characteristic

To adjust buzzer's characteristic turn key switch S1 on operating device LOD 210.24.0.0 to position "SELECT".



After turning key switch S1 to position "SELECT" display is showing "text 3".

display „text 3“



Now push rotary encoder's push button S2 on operating device LOD 210.24.0.0 so often as display is showing "text 22".

display „text 22“



Now turn rotary encoder to choose an adequate buzzer characteristic. By pushing rotary encoder's push button S2 display is changing and system accepts adjusted value.

**Do not accept offered buzzer characteristics during buzzer is activated
(Wait for the brake!)**

Adjust internal buzzer's volume

To adjust internal buzzer's volume turn key switch S1 on operating device LOD 210.24.0.0 to position "SELECT". Minimum sound volume is limited to 65dB(A)



After turning key switch S1 to position "SELECT" display is showing "text 3".

display „text 3“



Now push rotary encoder's push button S2 on operating device LOD 210.24.0.0 so often as display is showing "text 23".

display „text 23“



Now turn rotary encoder in counter clock wise direction to decrease buzzer's sound volume or in clock wise direction to increase sound volume. By pushing rotary encoder's push button S2 display is changing and system accepts adjusted value.

Notice:

During alarm stage 1 (alarm on bridge & bridge wing area) internal buzzer's sound volume can be adjusted by turning rotary encoder on operating device!

9 service menu overview

(for commissioning and service staff only!)

- Service menu #1: Test Mode 1...4 to simulate alarm stage #1, stage #2, stage #3 and system's fail state.
Pushing period after shut-down: 1-3 sec
- Service menu #2: Define quantity of involved back-up OOW cabins
Pushing period after shut-down: 4-6 sec
Menu is available only after NMEA expansion module is enabled!
- Service menu #3: Enabling / disabling of transfer alarm channels incl. time delay adjust
Pushing period after shut-down: 7-9 sec
Menu is available only after NMEA expansion module is enabled!
- Service menu #4: Enabling / disabling of bridge area monitoring system during unmanned bridge
Pushing period after shut-down: 10-12 sec
- Service menu #5: Enabling / disabling of NMEA expansion module
Pushing period after shut-down: 13-15 sec

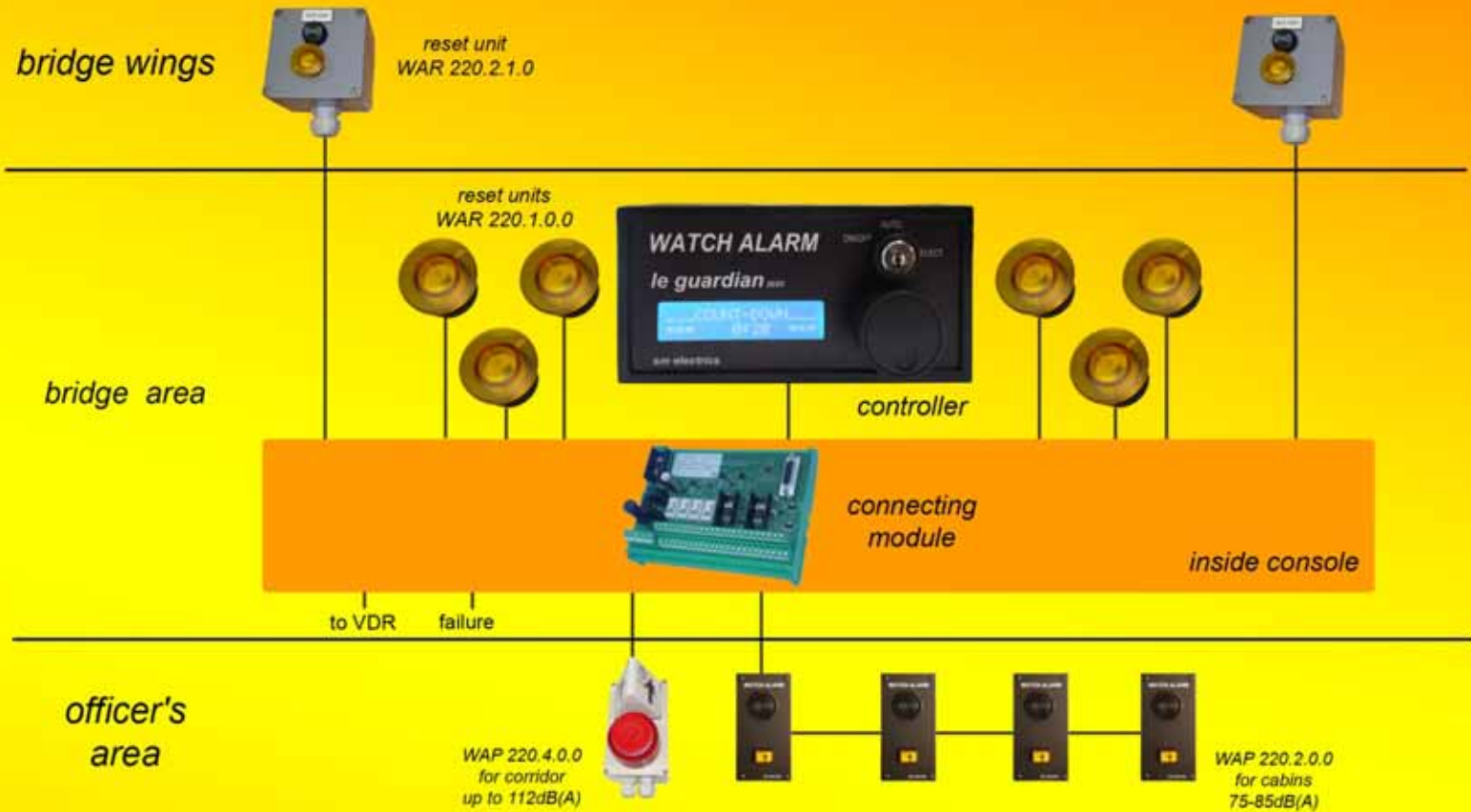
10 Technical data and schematics

generals

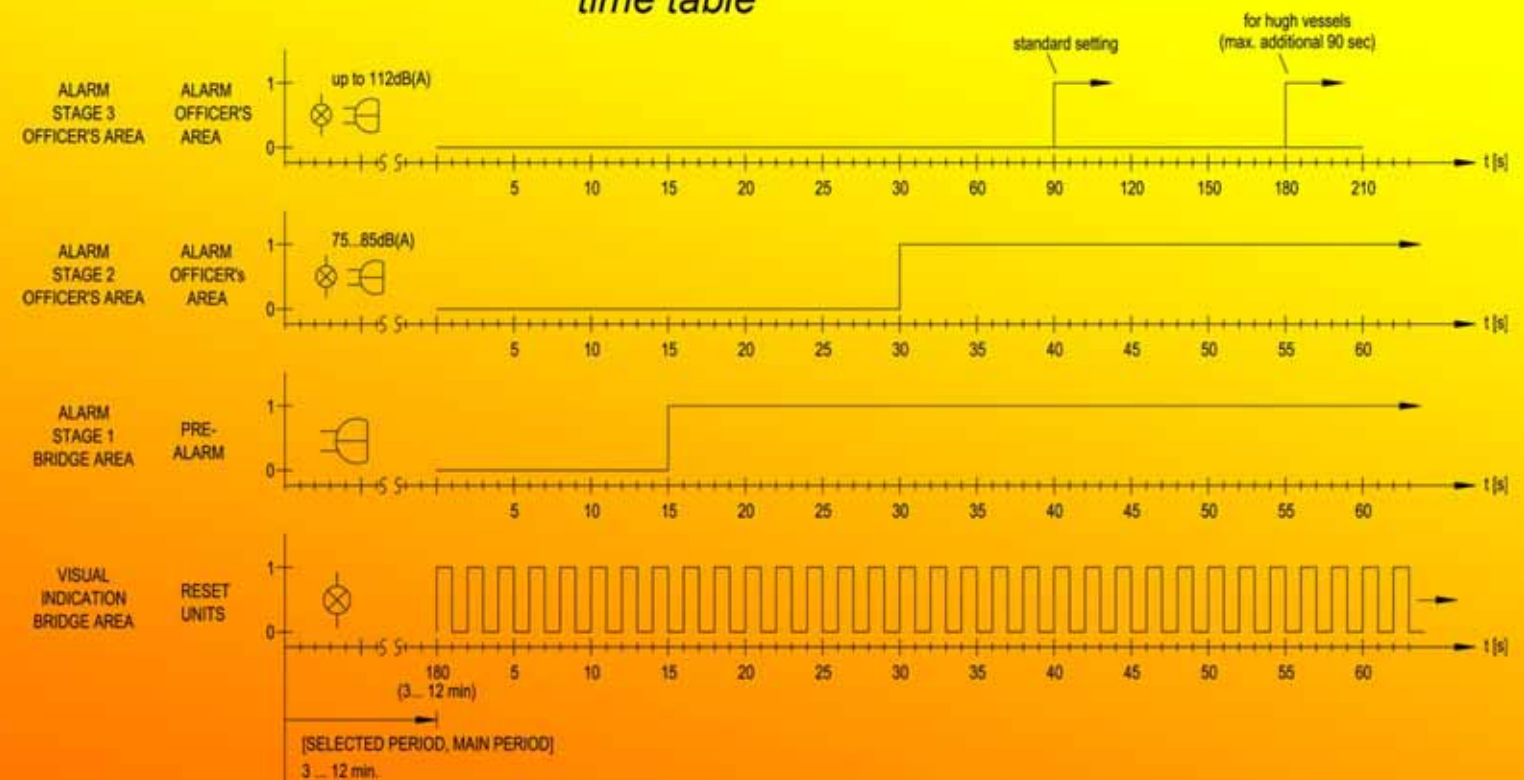
description: le guardian 2025 BNWAS
 power supply: 24VDC (nominal), 18,0... 31,2VDC, nominal feeding value: B4A
 power consumption: min. 60mA, max. 400mA, nominal value: 120mA
 internal fuses: 2x m2,0A, 5x20mm
 degree of enclosure: acc. EN 60529 see table
 approbation: design & manufacturing acc. IEC 60945, type approvals: GL, KR, RRS
 transistor outputs: "power on" indication: max. 400mA, reset p/b illumination: 2x 180mA
 max. load of relay contacts: 30VDC, 2A

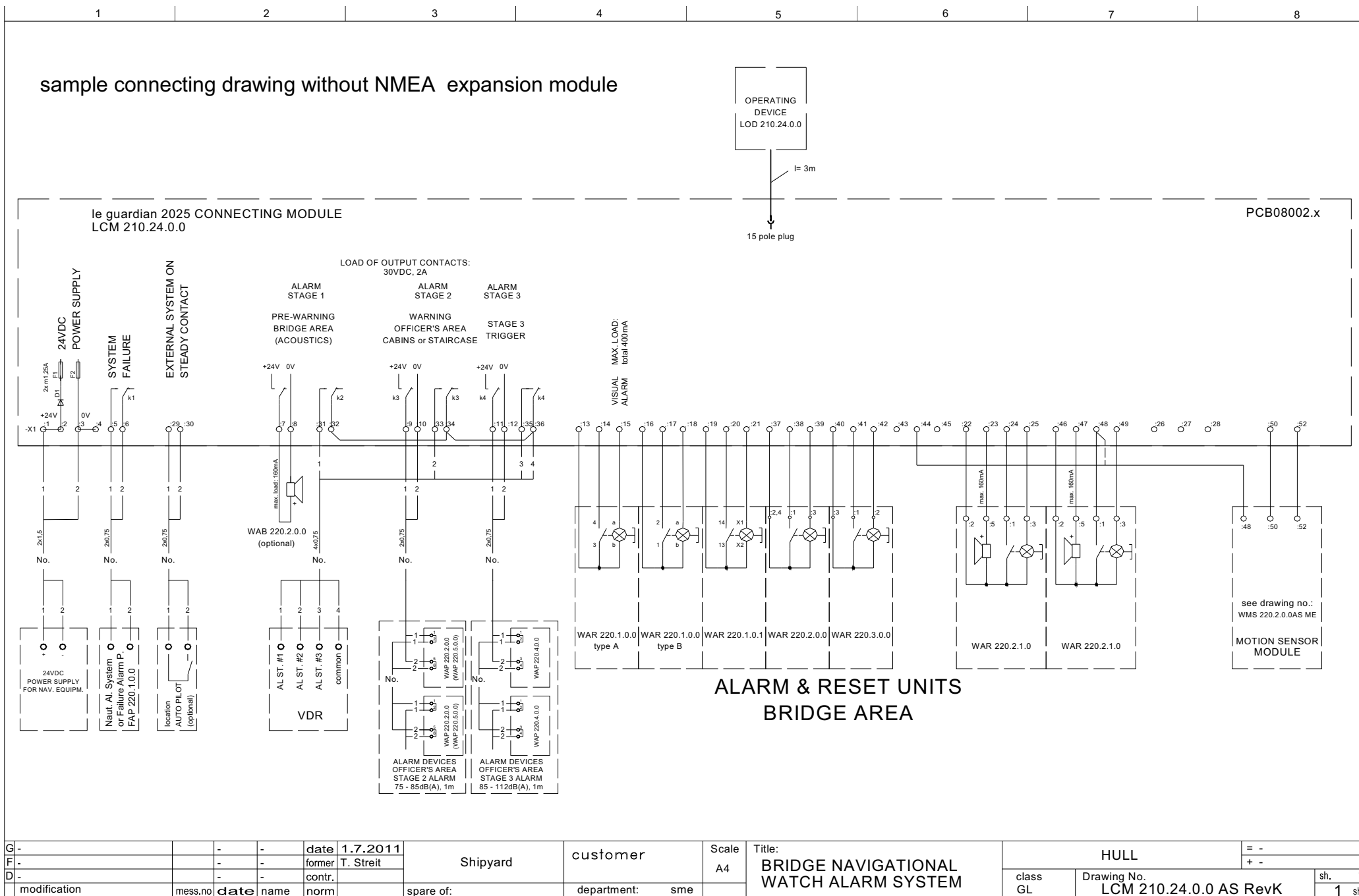
no.:	type:	description:	weight: [kg]	degree of enclosure	safety distance to magnetic compass [m]:	cable cross-sections:	spare parts:
1	operating device LOD 210.24.0.0	console mounted operating device with blue illuminated display, key switch and rotary encoder with integrated push button, w 144 x h 72 x d 75mm	device: 0,200 cable: 0,300	front: IP22 back: IP00	0,5	/	-
2	connecting module LCM 210.24.0.0	terminal board module, to be mounted on terminal rail TS35, w 162 x h 127 x d 68mm	0,330	IP20	0,5	0,2....1,5mm ²	2x micro fuse, m2,0A, 5x20mm part no.: 097109
3	NMEA exp. module NMEA 210.24.0.0	terminal board module, to be mounted on terminal rail TS35, w 87,1 x h 127 x d 68mm	0,164	IP20	0,5	0,2....1,5mm ²	1x micro fuse, m2,0A, 5x20mm part no.: 097109
4	WAP 220.2.0.0	watch alarm panel for officer's cabin, 80 dB(A) flush mounting	0,150	front: IP23 back: IP00	/	0,2... 2,5mm ²	1x bulb, mg28V, 40mA part no.: 099081
5	WAP 220.5.0.0	watch alarm panel for officer's cabin, 80 dB(A) bulkhead mounting	0,275	IP23	/	0,2... 2,5mm ²	1x bulb, mg28V, 40mA part no.: 099081
6	WAP 220.4.0.0	watch alarm panel for officer's area (corridor), 64-111dB(A) bulkhead or flush mounting	0,870	IP65	/	0,2... 2,5mm ²	1x bulb, E14, 24V, 4W part no.: 099141
7	WAR 220.1.0.0	watch alarm reset push button, illuminated, connecting type: welding	0,045	IP67	/	0,2... 0,75mm ²	1x bulb, T5,5, 28V, 40mA part no.: 099076
8	WAR 220.1.0.1	watch alarm reset push button, illuminated, connecting type: screws	0,080	IP65	/	0,2... 2,5mm ²	1x bulb, Ba9s, 28V, 45mA part no.: 099083
9	WAB 220.1.0.0	watch alarm wall box with buzzer, 85 dB(A)	0,750	IP65	/	0,2... 2,5mm ²	/
10	WAB 220.2.0.0	external watch alarm buzzer, 85 dB(A) one whole installation, 22,5mm	0,030	IP65	/	0,2... 2,5mm ²	/
11	WAR 220.2.0.0	watch alarm wall box for reset, illuminated	0,750	IP65	/	0,2... 2,5mm ²	1x bulb, T5,5, 28V, 40mA part no.: 099076
12	WAR 220.2.1.0	watch alarm wall box for reset, illuminated with buzzer, 85 dB(A)	0,850	IP65	/	0,2... 2,5mm ²	1x bulb, T5,5, 28V, 40mA part no.: 099076
13	WMS 220.2.0.0	watch alarm motion sensor kit for OOW's activity detection for count-down reset (module data)	0,070	IP20	0,4 / 0,35	0,2... 2,5mm ²	

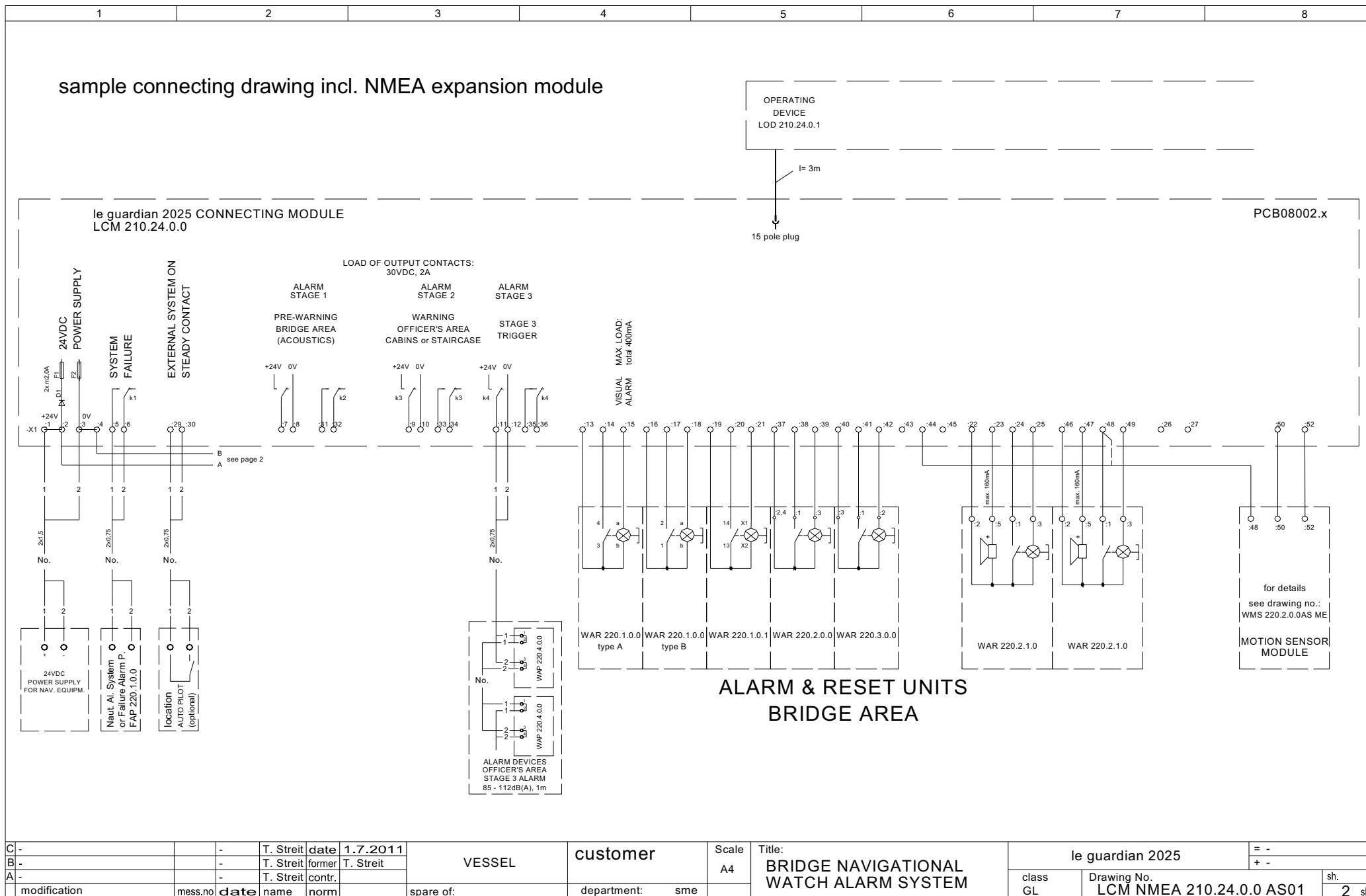
Bridge Navigational Watch Alarm System sample system

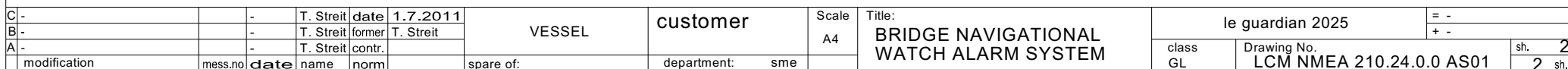


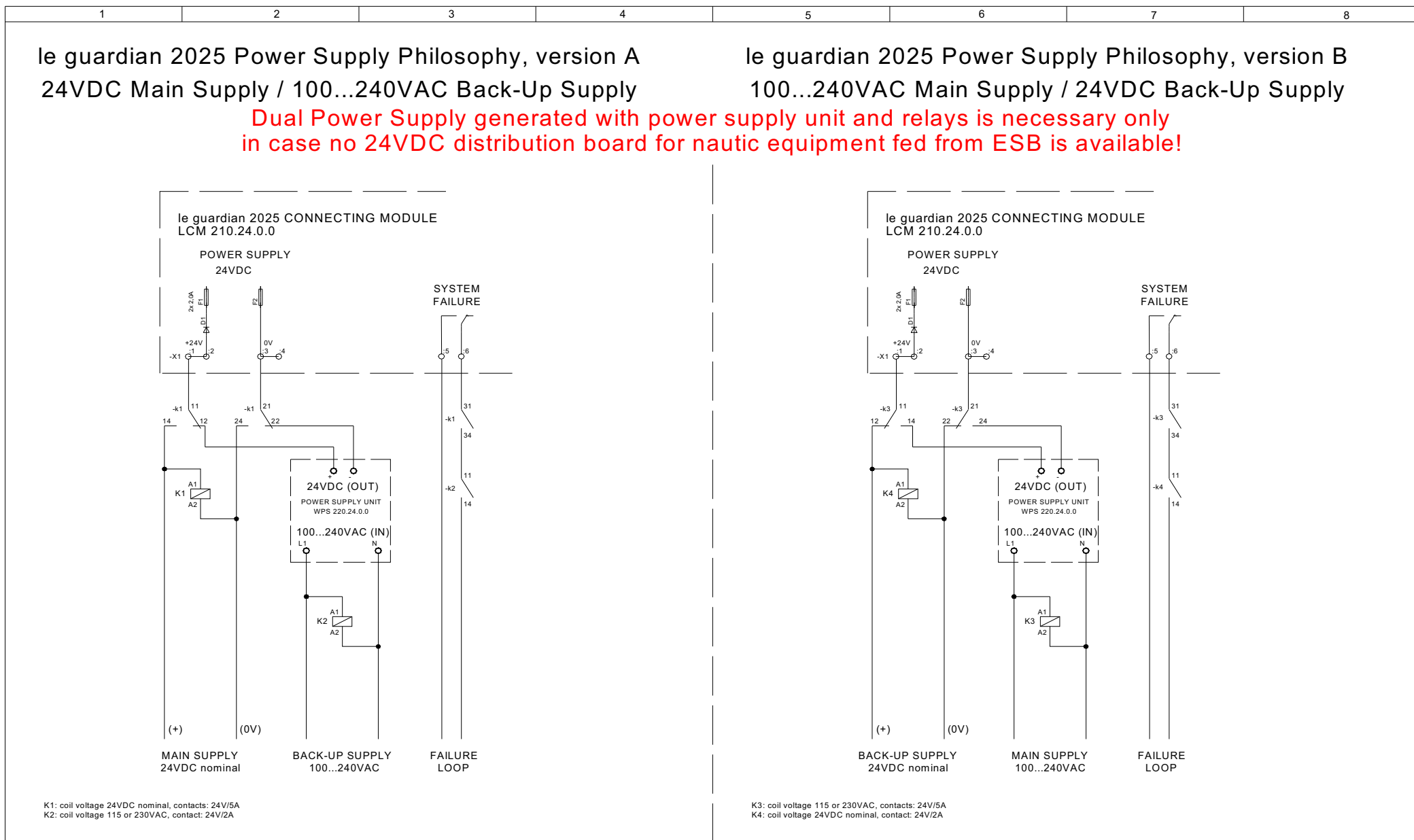
time table



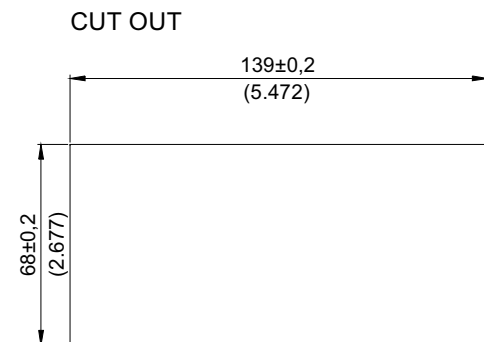
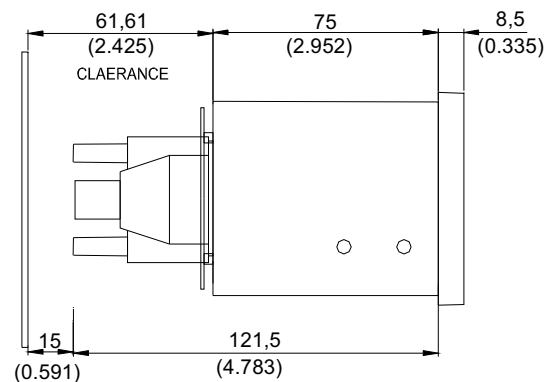
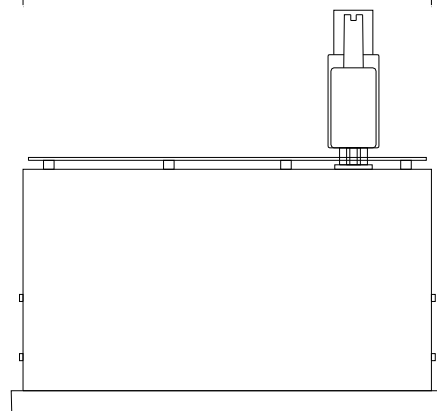
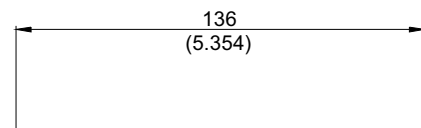
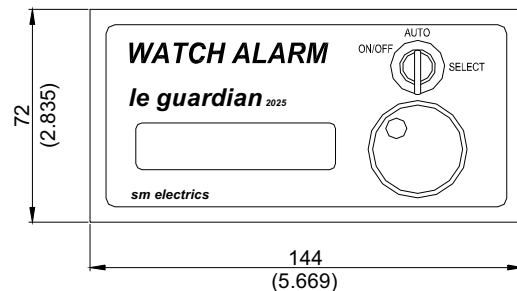








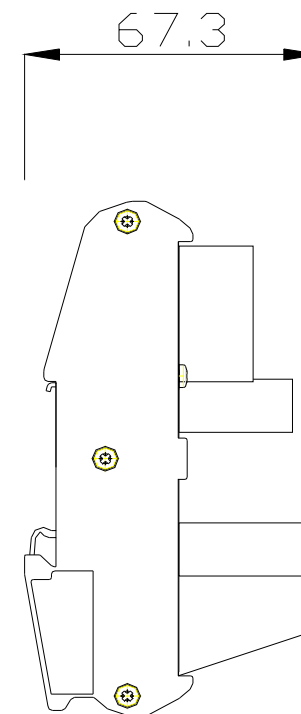
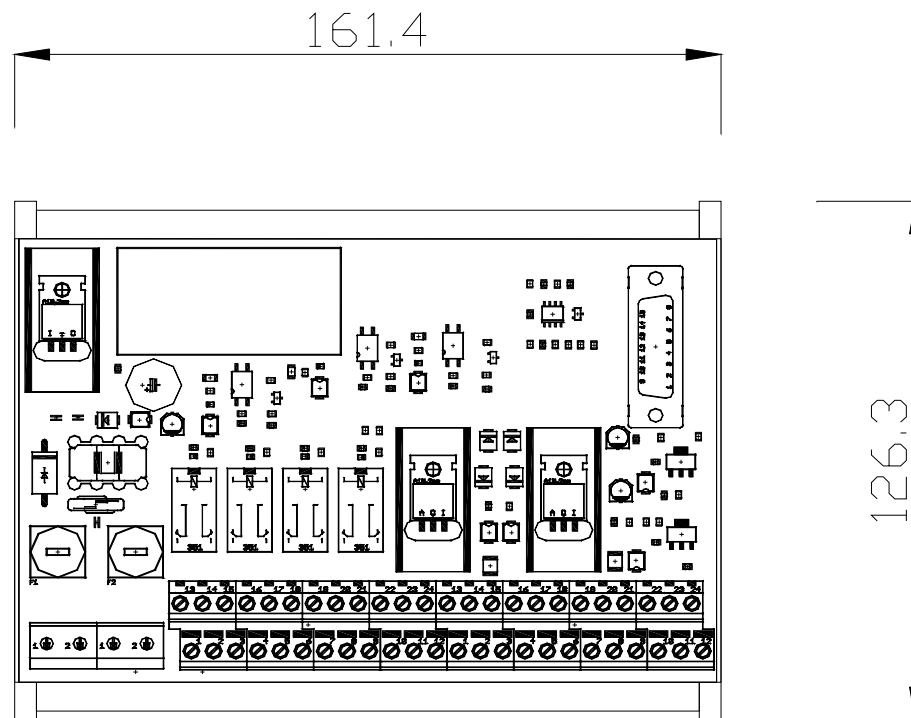
G -		-	-	date	15.1.2011	Shipyard	customer	Scale A4	Title: le guardian 2025 BNWAS	HULL		= -	
F -		-	-	former	T. Streit							+ -	
D -		-	-	contr.									
modification		mess.no	date	name	norm	spare of:	department:	sme		class GL	Drawing No. WPS 220.24.0.0 A AS	RevA	sh. 1



CONSOLE MATERIAL: max. t=8,0mm (0.315)

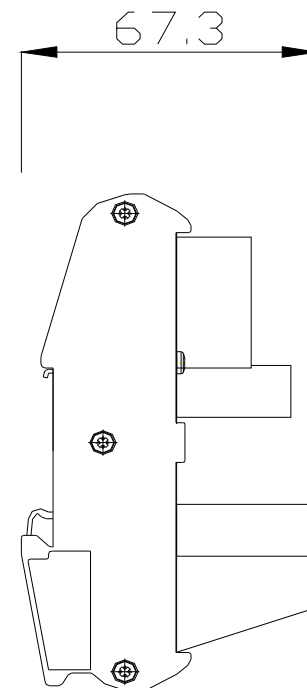
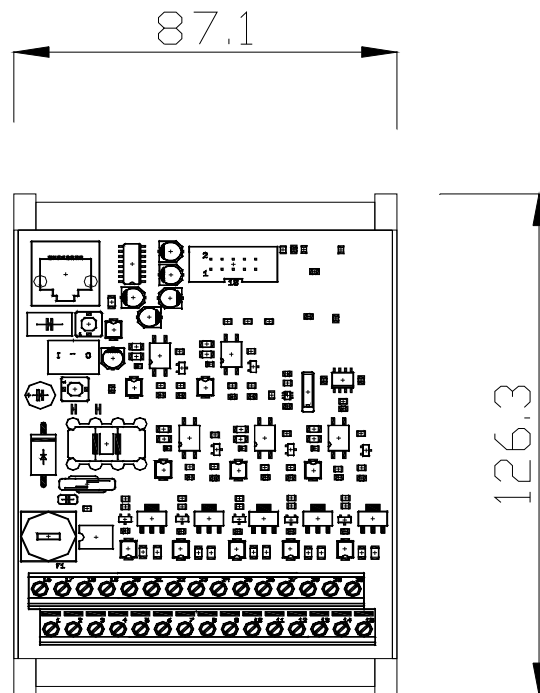
panel surface: black polycarbonat
 print: RAL 9010
 degree of enclosure, EN 60529: IP22 front sided
 evenness of mounting surface < 0,1mm (to keep degree of enclosure)
 weight: 0,200kg
 power supply: 18,0... 31,2V
 power consumption: max. 8,2W, nominal 4,0W

2008	DATUM	NAME	BNWAS OPERATING DEVICE DIMENSIONAL DRAWING		PART No.: 770282		
BEARB.	22.10.	Streit			mm		
GEZ.					(INCH)		
GEPRÜFT							
sm electronics & more services			BNWAS LOD 210.24.0.0 ME				
			AUFTRAG-NR		TYP-A/STAND-E		ART
			LOD 210.24.0.0 01		sheet: 1	of: 2	



to be mounted on terminal rail TS35
 system voltage: 18,0...31,2VDC, power consumption: 20W
 core size: max 0,2.... 1,5mm, power supply: 0,2.....2,5mm
 degree of enclosure: IP 20
 max. depth: 70mm
 weight: 0,35kg
 safety distance to magnetic compass: 0.5m

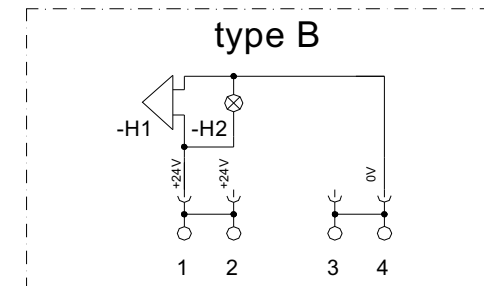
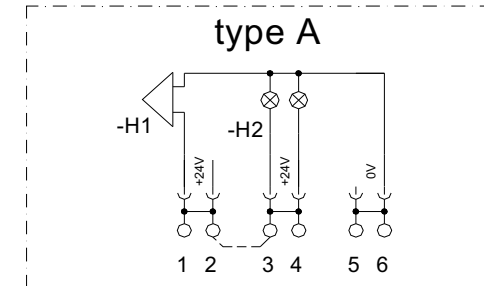
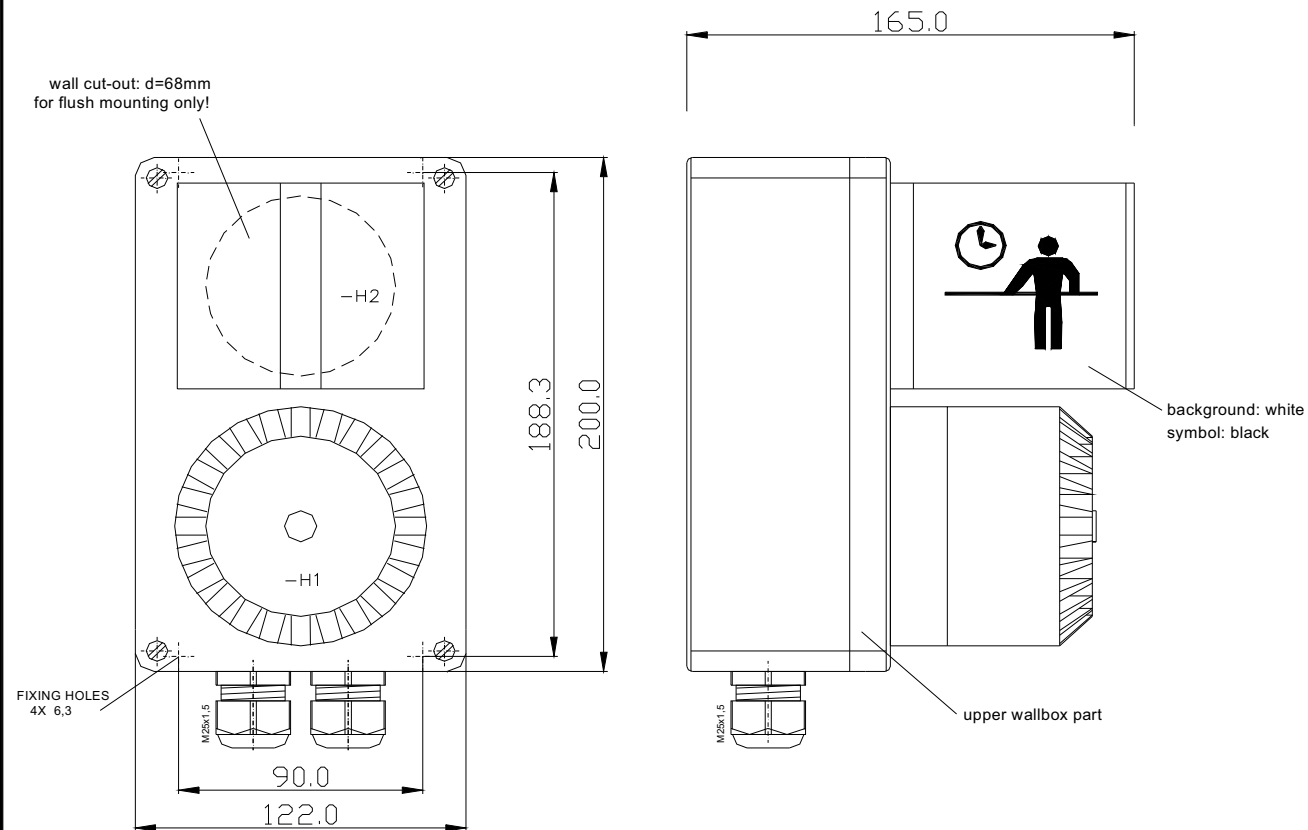
part no.: PCB08002.1					
INDEX	FELD	ÄNDERUNG		ÄND.-MITT.	DATUM
2008	TAG	NAME	le guardian 2025 connecting module		
BEARB	28.9.	Streit			
GEPR.					
NORM					
sm electronics & services		BNWAS LCM 210.24.0.0		ME A	
		AUFTRAG-NR	TYP-A/STAND-E	ART	INDEX
				BLATT: 2	VON: 2



to be mounted on terminal rail TS35
 system voltage: 18,0...31,2VDC, power consumption: 1,5W nominal
 core size: max 0,2.... 1,5mm
 degree of enclosure: IP 20
 max. depth: 70mm
 weight: 0,35kg
 safety distance to magnetic compass: 0.5m

				part no.: PCB10002.2			
INDEX	FELD			ÄNDERUNG	ÄND.-MITT.	DATUM	NAME
2010	TAG	NAME					
BEARB.	2.8.	Streit					
GEPR.							
NORM							
sm electronics & more			NMEA 210.24.0.0			ME A	
			AUFTRAG-NR.	TYP-A/STAND-E		ART	INDEX
						BLATT: 1	VON: 1

for flush mounting use only upper part!

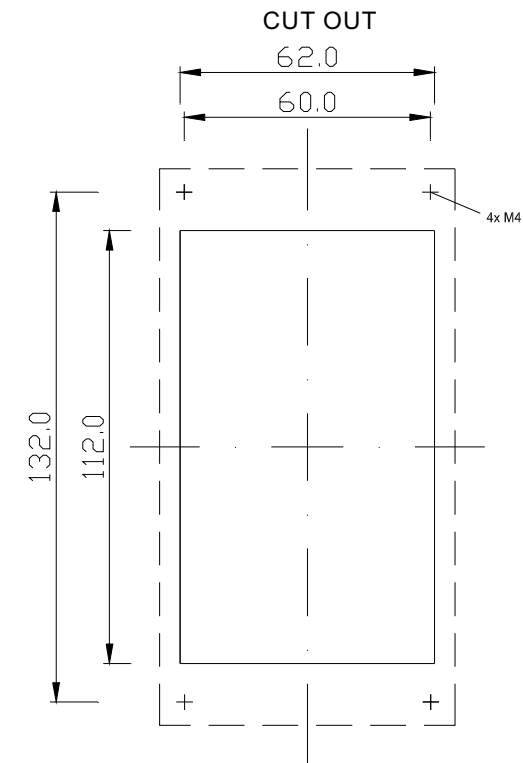
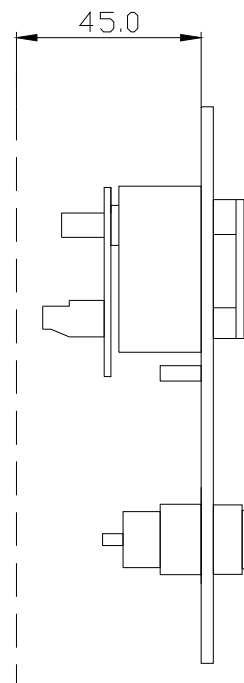
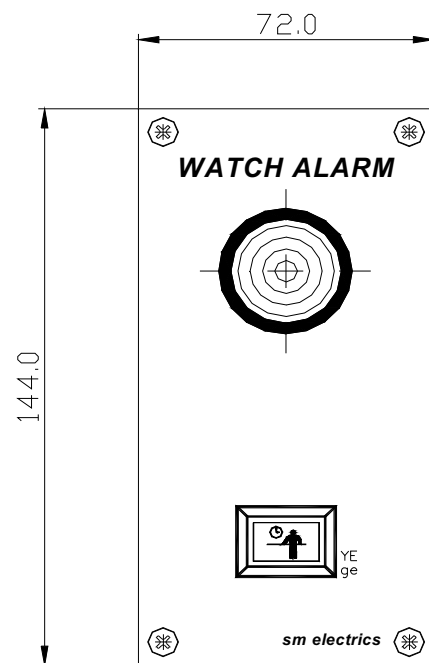


wallbox surface: RAL 7035
 nominal values: 24VDC, 275mA
 sound pressure level: 64 - 111 db(A) (adjustable)
 sound characteristic: 2850 Hz continuous
 cable diameter: 8,0 -16,0mm
 core size: max 2,5mm
 degree of enclosure: IP 65
 depth without lower wall box part: 30mm
 bulbs: max. 5W
 weight: 0,870kg

sound code: 11100

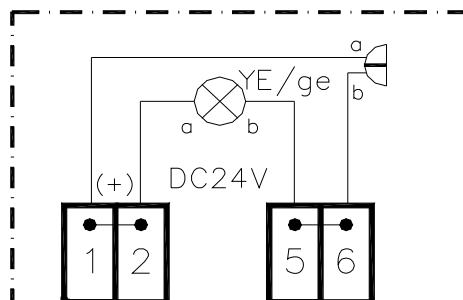
2005	DATUM	NAME	SIGNAL DEVICE WITH SOUNDER & TRIANGLE LIGHT FOR WATCH ALARM		PART No.: 770106
BEARB.	31.1.	Streit			
GEZ.					
GEPRÜFT					
			BNWAS WAP 220.4.0.0		ME A
			AUFTRAG-NR	TYP-A/STAND-E	ART AND
			BLATT:		VON:

remarks

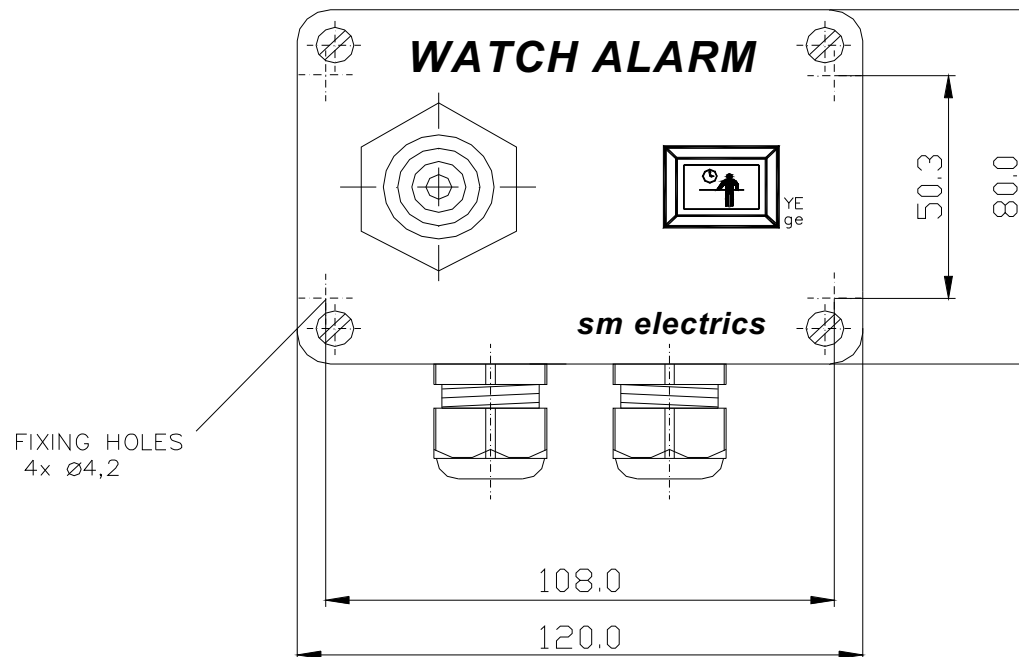


panel's outline dimensions: 144x72mm

surface: black anodized
print: white RAL 9010
nominal values: 24VDC, 50mA
degree of enclosure: IP 23
core size: max. 2,5mm²
sounder: 80 dB(A)
depth: 45mm
weight: 0,150kg

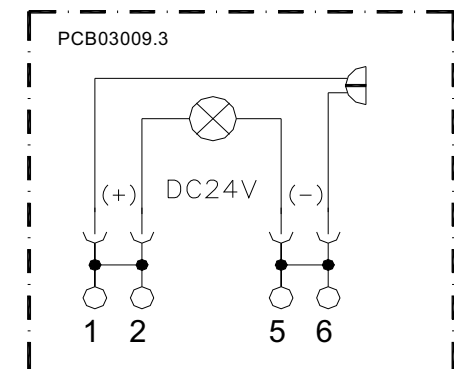
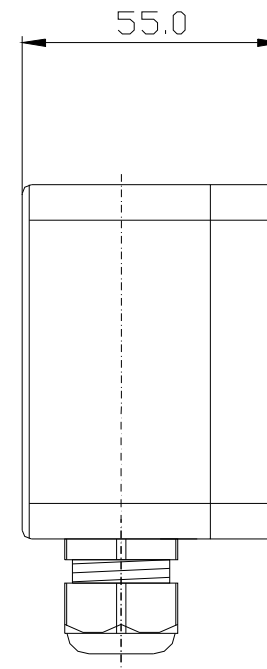


2004	DATUM	NAME	WATCH ALARM PANEL for OFFICER'S CABIN		PART No.: 770107
BEARB.	10.12	Streit	WAP 220.2.0.0		
GEZ.			(for stage #2 alarm)		
GEPRÜFT					
sm electrics & more services			BNWAS WAP 220.2.0.0		ME B
			AUFTRAG-NR	TYP-A/STAND-E	ART INDEX
			BLATT:		VON:

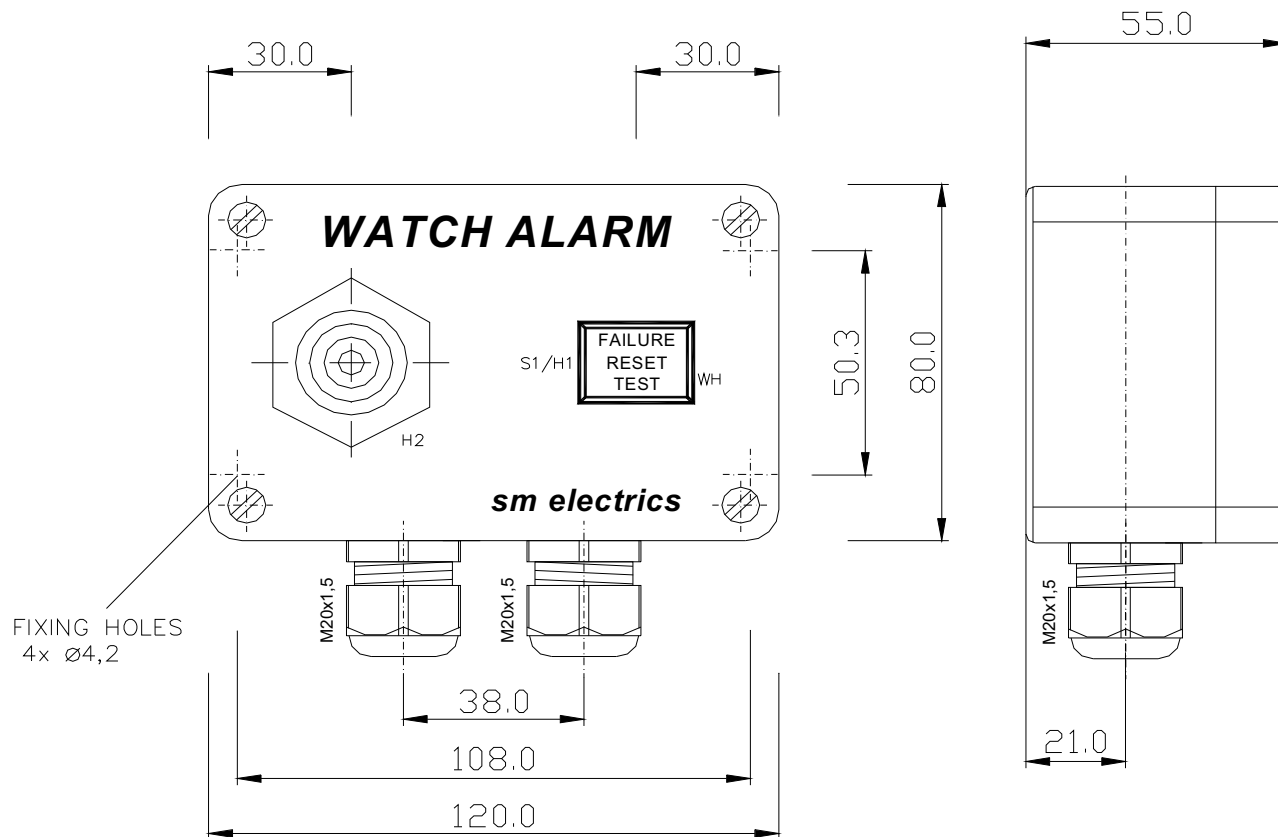


FIXING HOLES
4x Ø4,2

wallbox surface: RAL 7035
material: ABS
cable diameter: M20x1,5, 7,0.... 12,3mm
core size: 0,5... 1,5mm²
degree of enclosure: IP23
quick lock: stainless steel

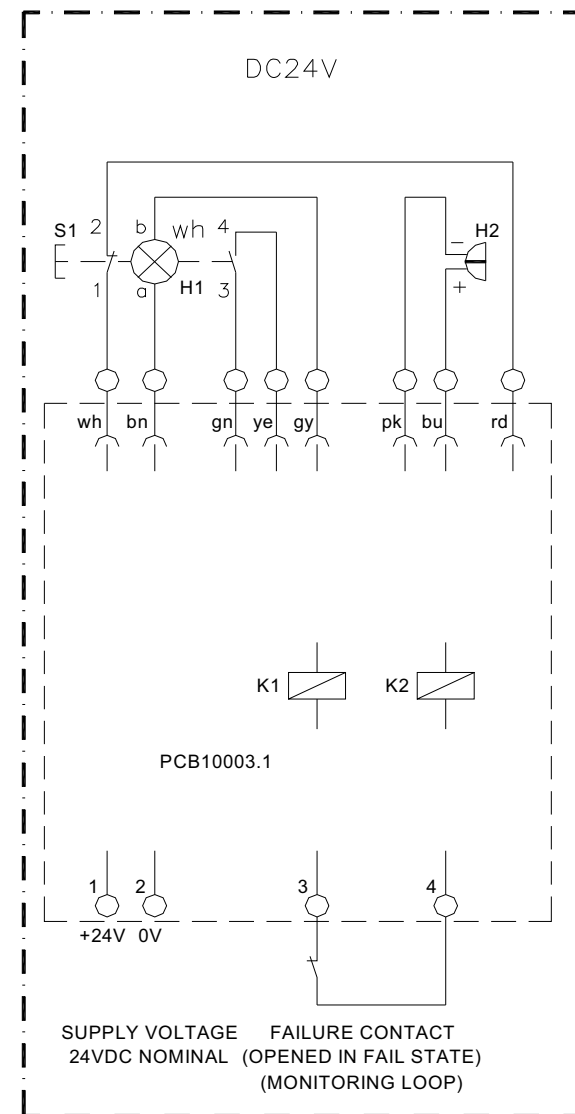


2010	DATUM	NAME	WATCH ALARM PANEL BULKHEAD		770318
BEARB.	7.5.	Streit	FOR OFFICER'S CABIN, WAP 220.5.0.0		
GEZ.					
GEPR.					
sm electrics			BNWAS WAP 220.5.0.0		A
services & more			AUFTRAG-NR	TYP-A/STAND-E	ART INDEX
			BLATT: 1		VON: 1



DO NOT USE SAME 24V POWER SOURCE FOR MONITORED SYSTEM AND FAILURE ALARM PANEL

wallbox surface: RAL 7035
material: ABS
cable diameter: M20x1,5, 7,0.... 12,3mm
core size: 0,5... 1,5mm²
degree of enclosure: IP23
quick lock: stainless steel

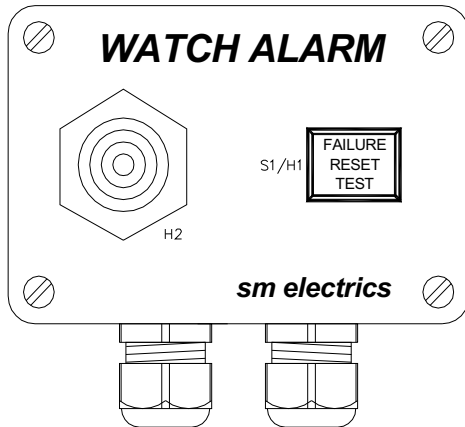


2010	DATUM	NAME	770423
BEARB.	10.8.	Streit	
GEZ.			
GEPRÜFT			
FAILURE ALARM PANEL BULKHEAD FOR WATCH ALARM SYSTEM FAIL INDICATION			
sm electrics & services & more		BNWAS FAP 220.1.0.0 AUFTRAG-NR TYP-A/STAND-E	
		A ART INDEX	
		BLATT: 1	VON: 2

FAILURE ALARM PANEL

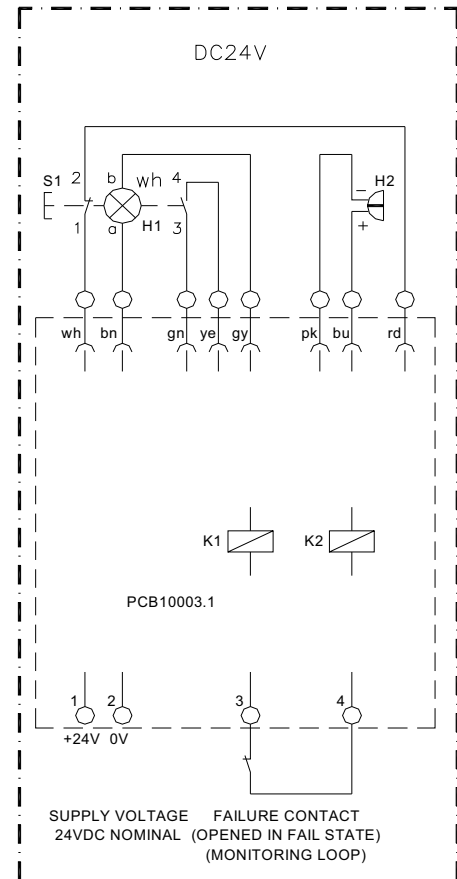
FAP 220.1.0.0

Supply voltage: 24VDC nominal, n/c monitoring loop
part no.: 770423



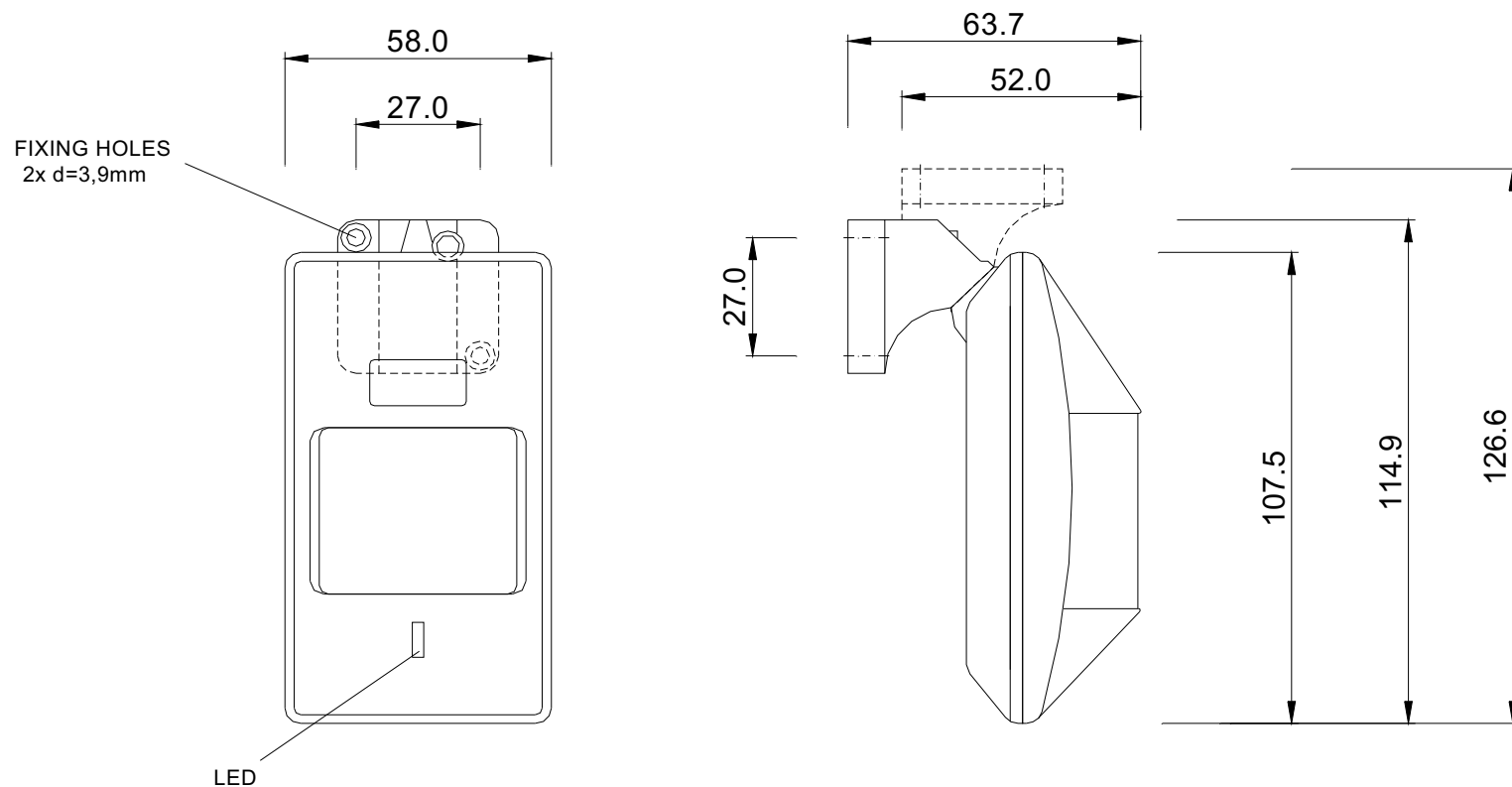
Technical data:

- Input / output terminals: 0,2...2,5mm², 0,6 – 0,6 Nm
- Input voltage range: 19,2...31,2VDC
- Monitoring loop: normally closed
- Lamp & buzzer test included

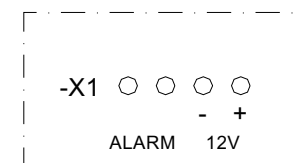


Operational description:

- After Failure Alarm Panel is connected to its power supply (terminals 1&2) and monitoring loop is closed (terminal 3&4) panel is activated for monitoring.
- In case monitoring loop is opened for longer than 250ms visual & audible indication (H1 & H2) has been activated.
- Audible indication (buzzer H2) can be stopped by pushing reset push button S1.
- Visual indication (indication lamp H1) is activated as long as monitoring loop is opened (monitored system is in fail state)
- When loop is opened for a short period only, due to a short fail state of monitored system, buzzer (H2) is activated as long as reset push button has been pushed.
- Push button S1 can be used as lamp & buzzer test.



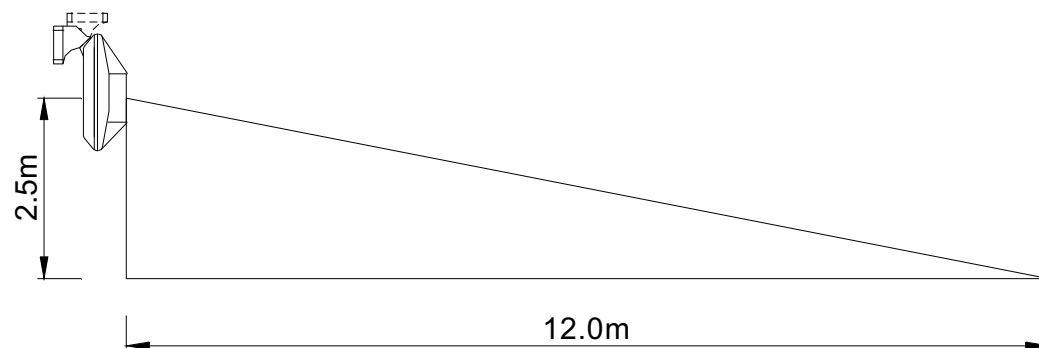
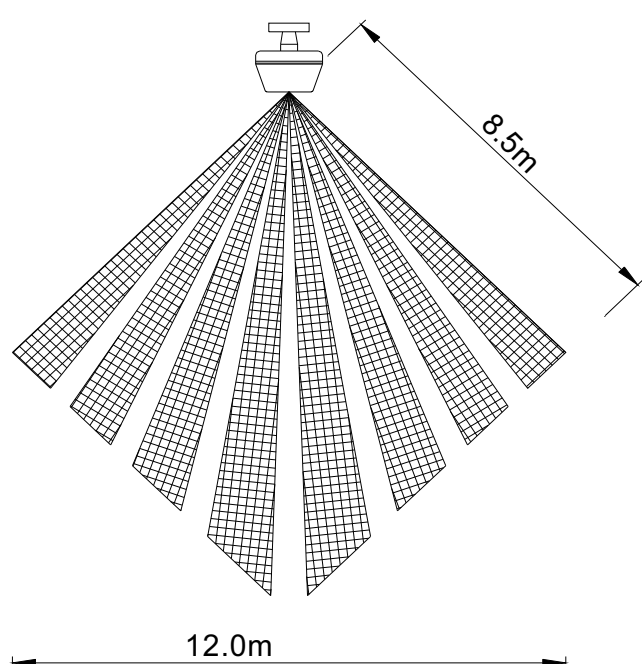
1.) motion sensor is in operation only 2 min. after first count-down procedure has been started!



wallbox surface: RAL 9003
 material: ABS
 finally connected to distribution box (cable lenght: 1,0m)
 optimize mounting height: 2,5m
 degree of enclosure: IP23
 disconnect LED after commissioning!
 current consumption: 12mA

2010	DATUM	NAME	WATCH ALARM PIR MOTION SENSOR		PART No.: 770307
BEARB.	4.1.	Streit	WMS 220.2.0.0		
GEZ.					
GEPR.					
			BNWAS WMS 220.2.0.0		ME A
			AUFTRAG-NR	TYP-A/STAND-E	ART INDEX
			sheet: 1 of: 2		

INSTALLATION INSTRUCTIONS DETECTING AREA



detecting method:

A heating source (human being) has been detected only, when it is passing a defined quantity of sectors within a defined period.

That is to avoid unintentional detection of a fixed heating source (heater, coffee machine, hot power supply)

That means consequently, OOW has to pass sectors for detecting.

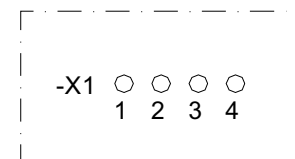
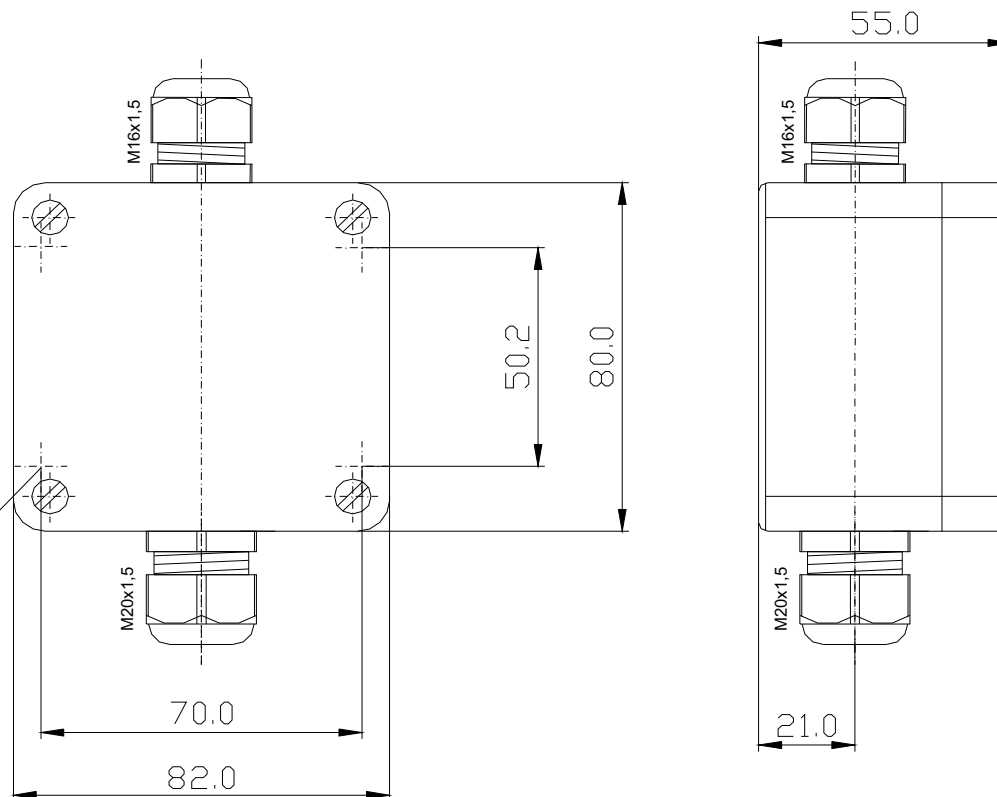
Sensor's sensitivity is depending on distance due to sector geometry

- 1.) Do not mount unit in direct sunlight or near heat sources!
- 2.) Make sure OOW has a proper look-out inside complete detecting area!
- 3.) Motion sensor is in operation only 2 min. after first count-down procedure has been started!
- 4.) Motion sensor's preferred person's moving direction: crosswise to sensor
- 5.) Avoid an installation location with fast temperature fluctuations!
- 6.) Consider, sensor is designed to detect person in motion, avoiding accidental detections

Rev. B, 26. Dec. 2010, sector view & sector explanation added
Rev. A, Sept. 01.2010, intruction items 5 & 6 added

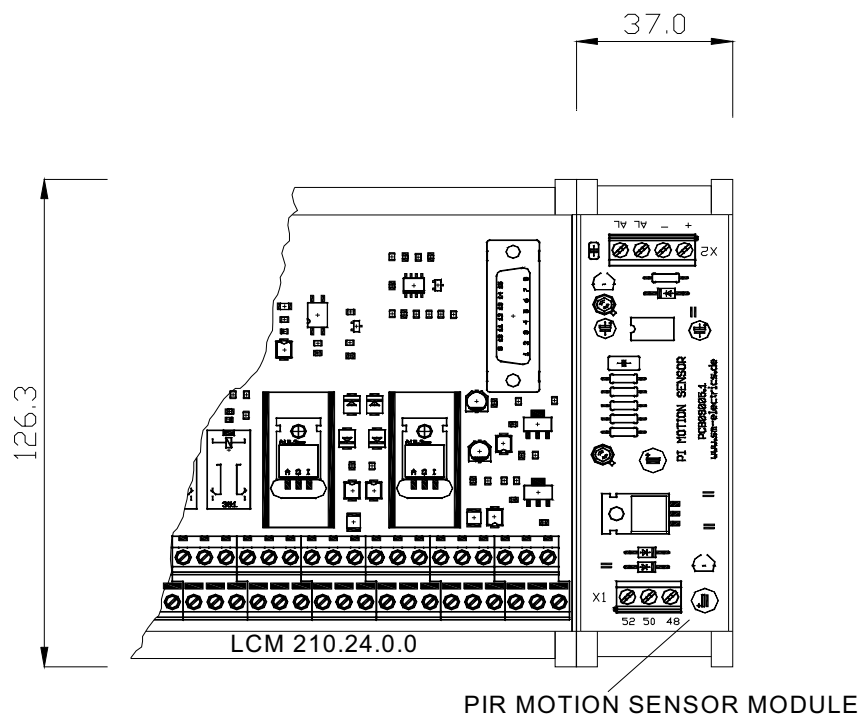
2010	DATUM	NAME	WATCH ALARM PIR MOTION SENSOR		PART No.: 770307
BEARB.	6.6.	Streit	WMS 220.2.0.0		
GEZ.					
GEPR.					
sm electronics & möblyces			BNWAS WMS 220.2.0.0		ME A
			AUFTRAG-NR	TYP-A/STAND-E	ART INDEX
					sheet: 2 of 2

FIXING HOLES
4x Ø4,2



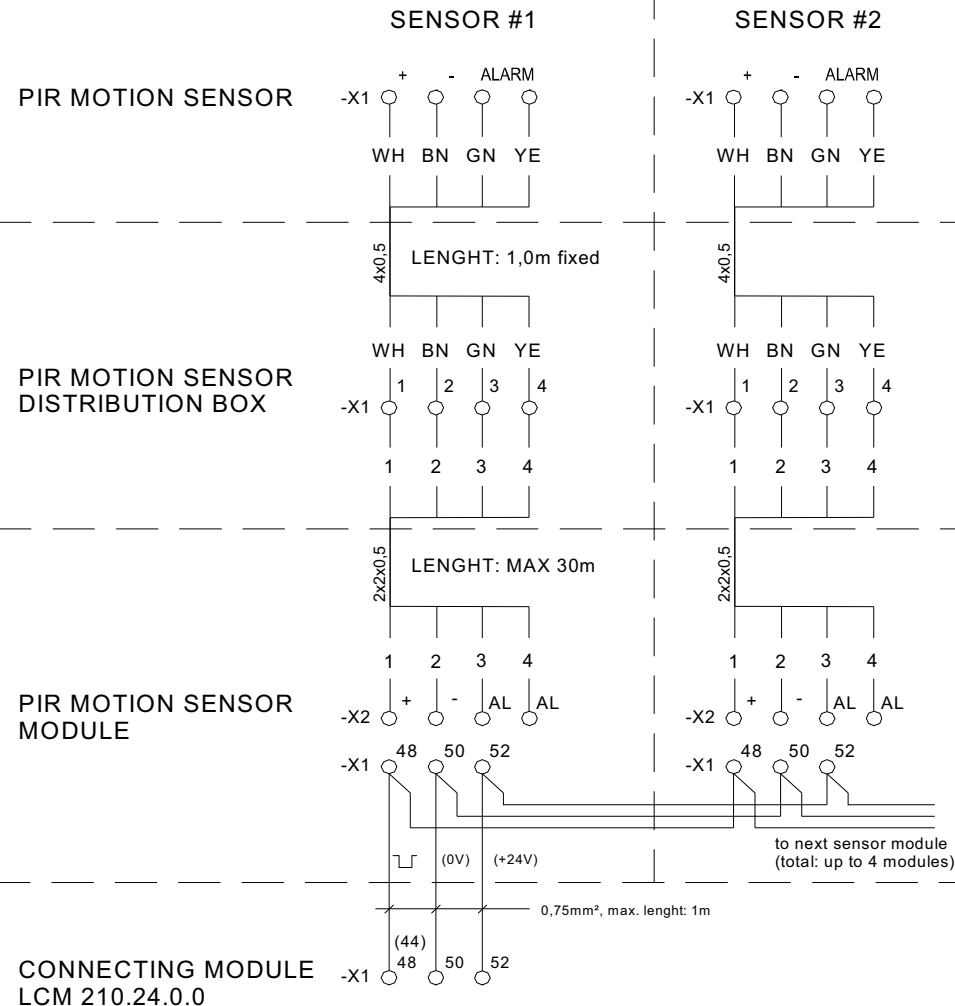
wallbox surface: RAL 7035
material: ABS
cable diameter: M20x1,5, 7,0... 12,3mm
core size: 0,5... 1,5mm
degree of enclosure: IP65
quick lock: stainless steel
cable lenght distribution box / PCB module: max. 15m

2010	DATUM	NAME	PART No.: 770444	
BEARB.	4.1.	Streit	DISTRIBUTION BOX FOR WATCH ALARM PIR MOTION SENSOR KIT	
GEZ.				
GEPR.				
sm electronics & more			BNWAS WMS DISTR. BOX	
			AUFTRAG-NR.	TYP-A/STAND-E
			BLATT:	VON:
			ART	INDEX
			ME	A

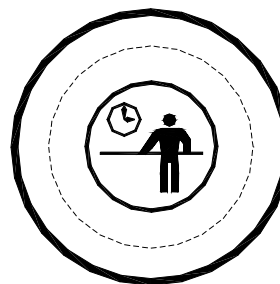
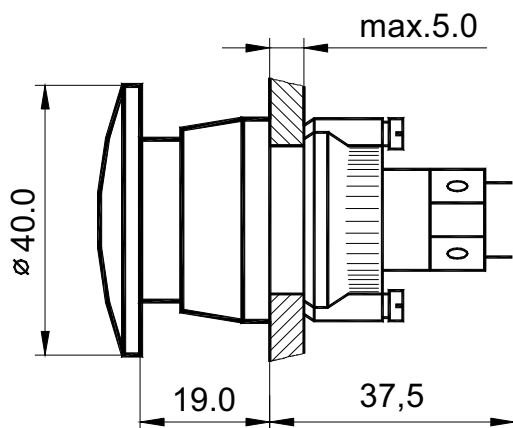


motion sensor is in operation only 2 min.
after first count-down procedure has been started!

to be mounted on terminal rail TS35
system voltage: from connecting module LCM 210.24.0.0 only!
core size: max 0,2.... 2,5mm
degree of enclosure: IP 20
depth: 55mm
weight: 0,070kg
safety distance to magnetic compass: 0,4 / 0,35m
power consumption: 1,8W nominal



		part no.: PCB09005.1	
A		additional motion sensor(s) added	3.3.10 Streit
INDEX	FELD	ÄNDERUNG	ÄND.-MITT.DATUMNAME
2010	TAG	NAME	
BEARB.	4.1.	Streit	
GEPR.			
NORM			
sm electronics & services		le guardian 2025 BNWAS PIR MOTION SENSOR MODULE	
BNWAS WMS 220.2.0.0		AS/ME A	
AUFTRAG-NR		TYP-A/STAND-E	
		ART INDEX	
		BLATT:1 VON:1	

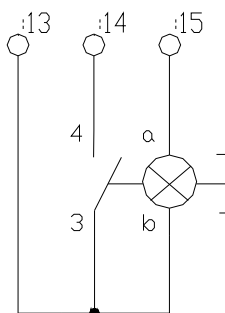


ILLUMINATED PUSH BUTTON

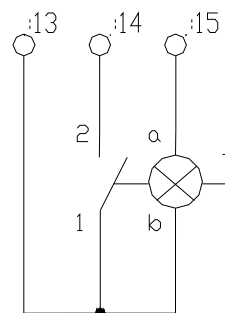
COLOUR AMBER
SINGLE HOLE INSTALLATION Ø 22,5mm
DEGREE OF ENCLOSURE IP67/IEC529
BULB T5,5-28V-1,2W
CONTACTS 1NC+1NO-Contact
CONNECTING TYPE WELDING
WIRE TYPE 0,2 – 0,75 mm²
WEIGHT 0,035kg

CONNECTION DIAGRAMS:

CONNECTING MODULE
LCM 210.24.0.0

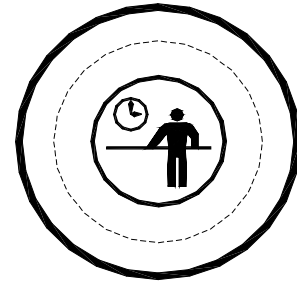
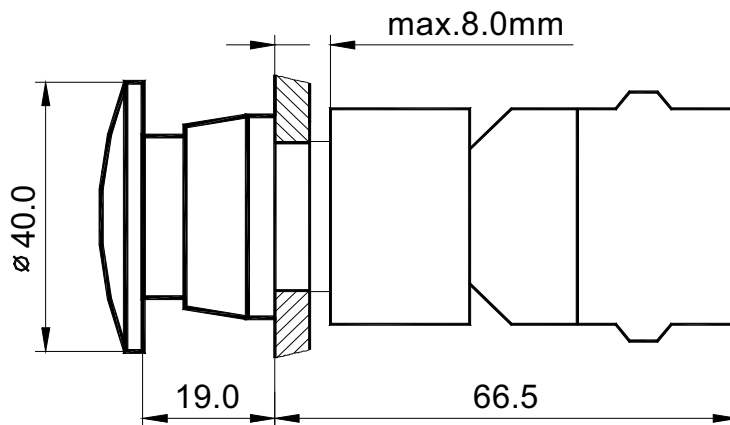


type A



type B

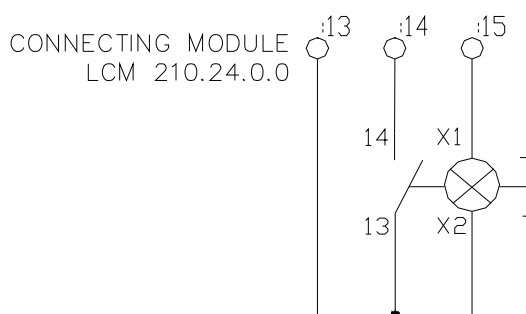
PART No.: 770040



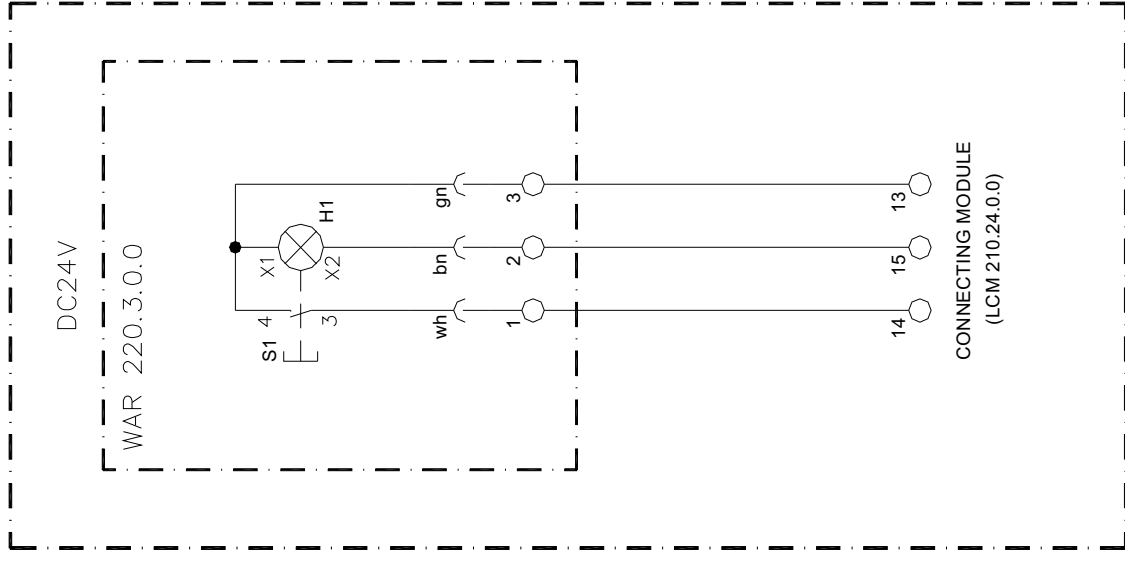
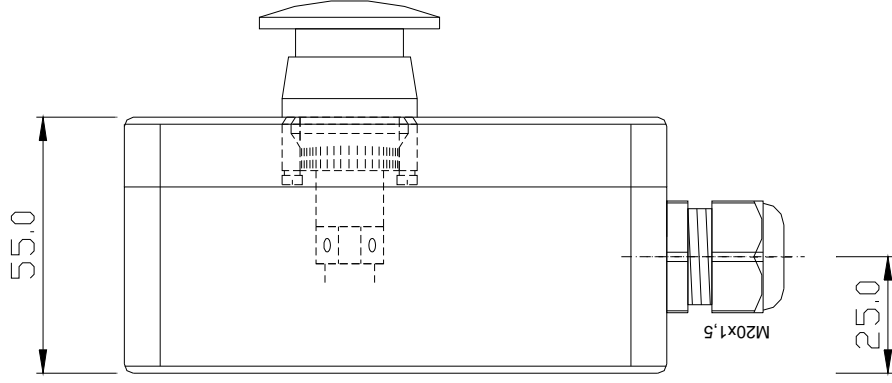
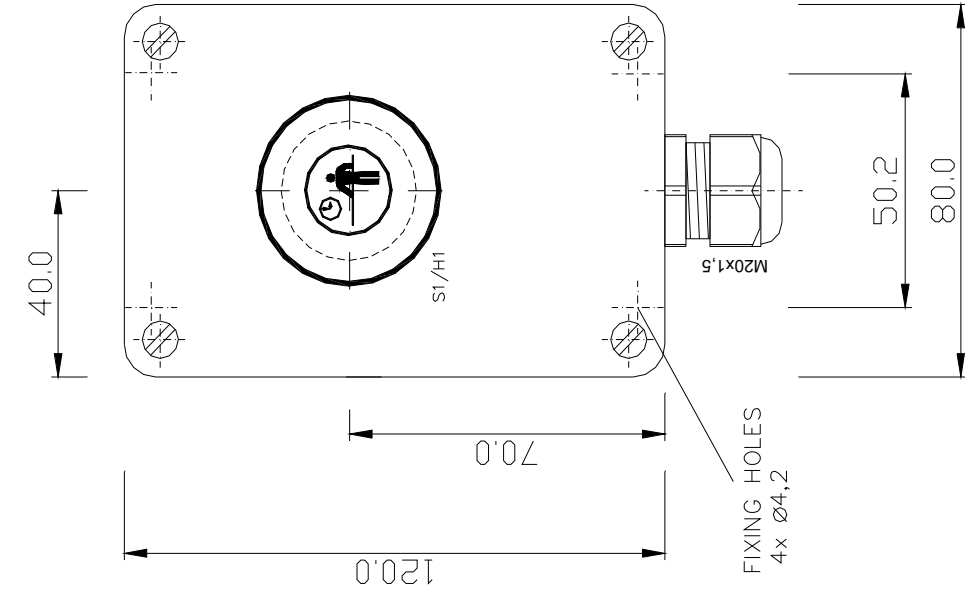
ILLUMINATED PUSH BUTTON

COLOURYELLOW
ONE-HOLE INSTALLATION $\varnothing 22,5$ mm
DEGREE OF ENCLOSUREIP65/IEC529
BULB Ba9s-28V-1,2W
CONTACTS 1NO-Contact
CONNECTING TYPE SCREWS
WIRE TYPE 0,5 – 1,5 mm²
WEIGHT 0,080kg

CONNECTION DIAGRAM:



PART No.: 770119



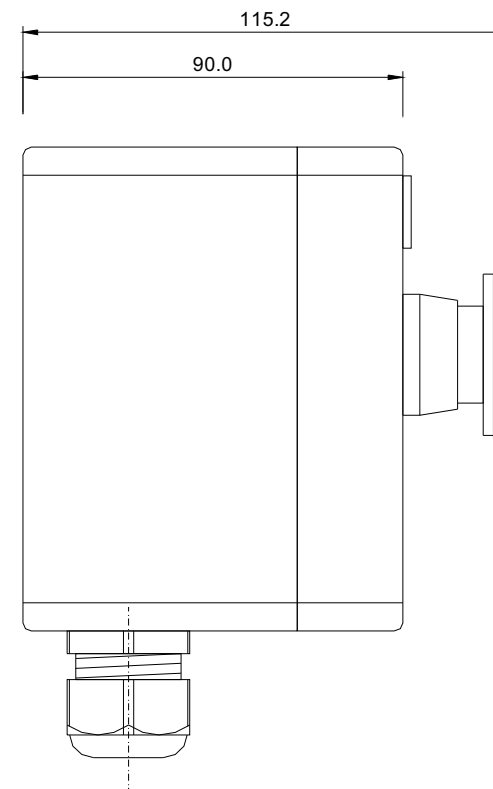
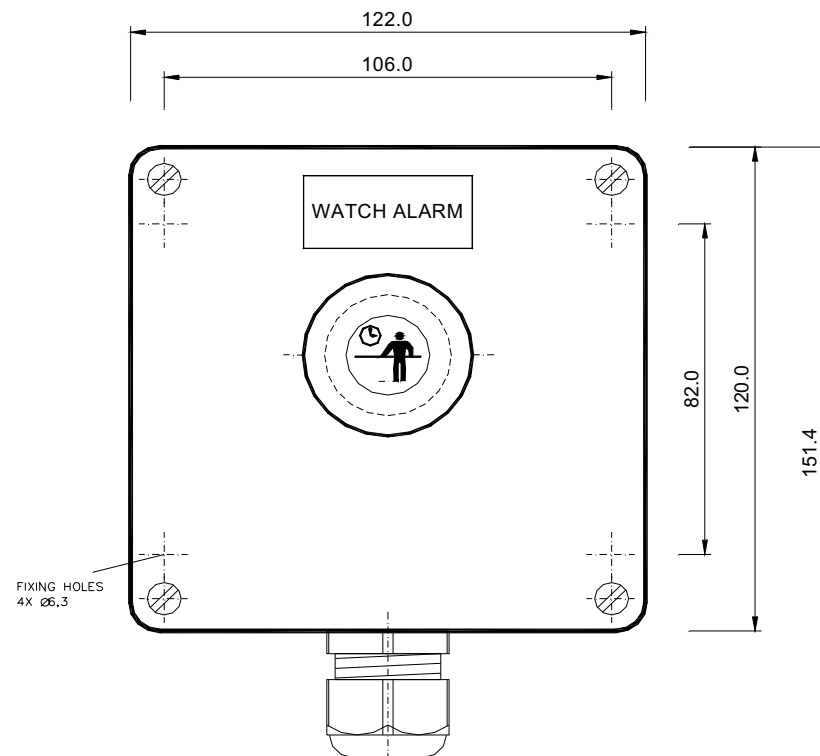
wallbox surface: RAL 7035
 material: ABS
 cable diameter: M20x1,5, 7,0... 12,3mm
 core size: 0,5... 1,5mm²
 degree of enclosure: IP23
 quick lock: stainless steel
 connecting type: terminal block

2010	DATUM	NAME
BEARB.	20.9.	Streit
GEZ.		
GEPRÜFT		

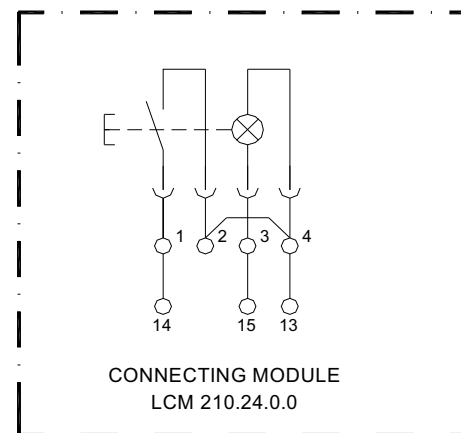
sm **electronics**
 & m89gvlces


WATCH ALARM RESET BOX
 FOR INDOOR APPLICATION ONLY
 PRE-ALARM & VISUAL STAGE #1 ALARM

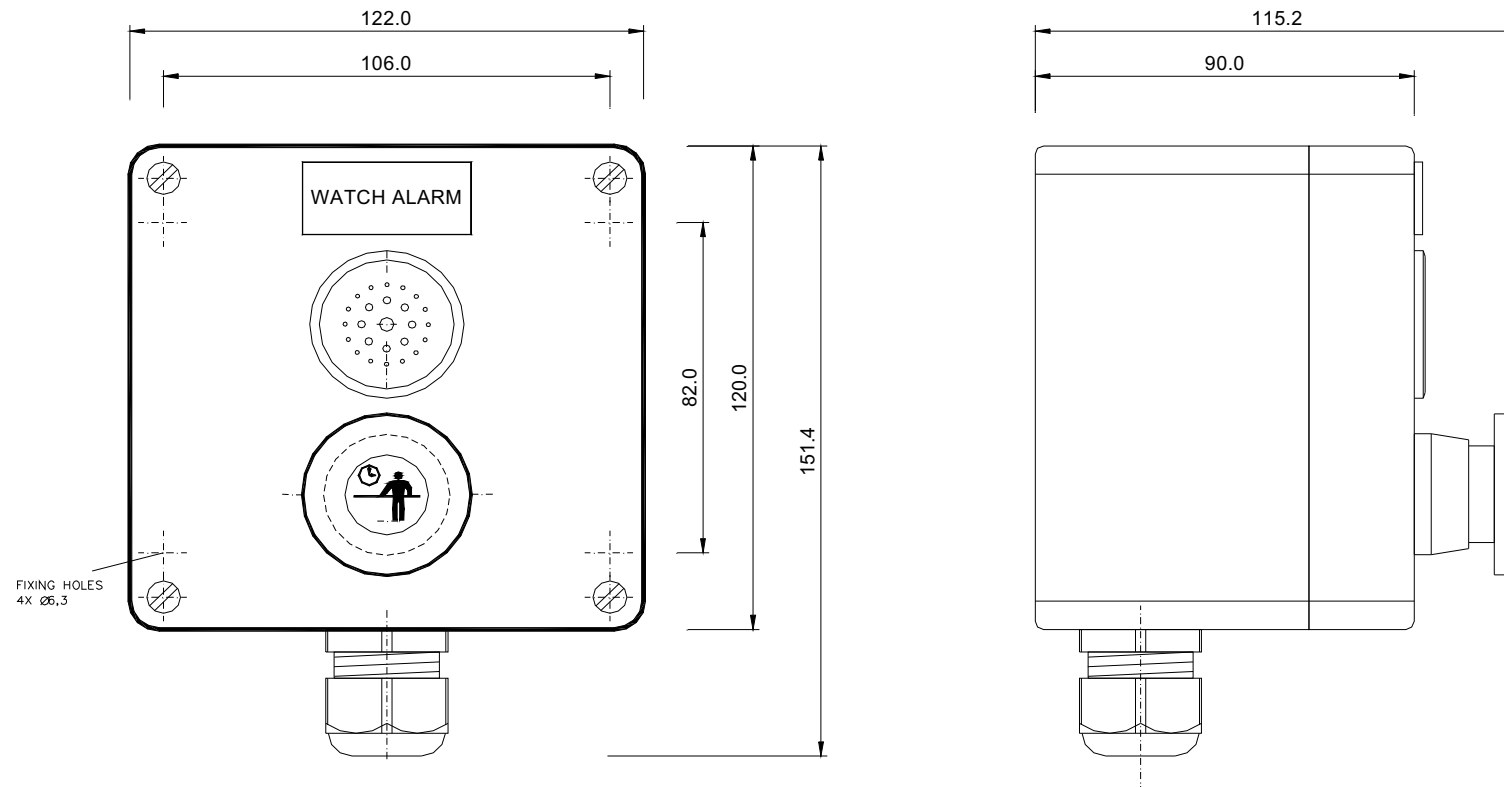
WAR 220.3.0.0	ME/AS A
DRWING NO.: TYP-A/STAND-E	ART INDEX
SHEET: 1	OF: 1



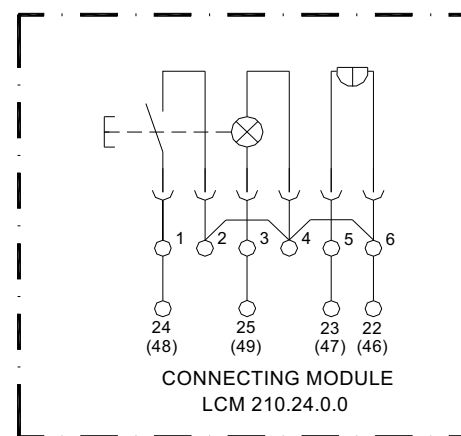
wallbox surface: RAL 7001
 nominal values: 24VDC, 50mA
 cable diameter: 7,5 -17,0mm
 core size: max 2,5mm
 degree of enclosure: IP 65
 weight: 0.800kg




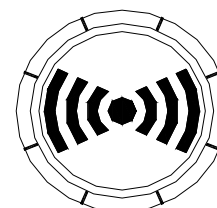
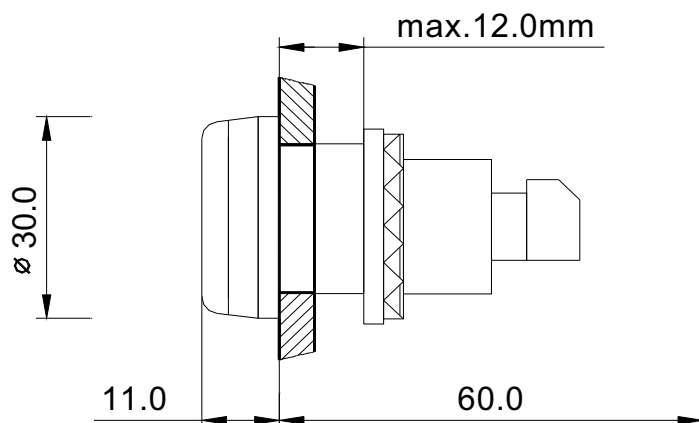
				part no.: 770041					
Rev. A: triple link added, 31.7.2009									
ÄNDERUNG				ÄND.-MITT.	DATUM	NAME			
INDEX	FELD	NAME		le guardian 2025 wall box for reset (pre-alarm & visual stage #1 alarm) for open bridge wing					
2003	TAG	Streit							
BEARB.	7.12.								
GEPR.									
NORM.									
				BNWAS WAR 220.2.0.0		ME A			
				AUFTRAG-NR		TYP-A/STAND-E		ART. ÄND.	
				-				SHEET: 1	
								OF: 1	



wallbox surface: RAL 7001
 nominal values: 24VDC, 50mA
 cable diameter: 7,5 - 17,0mm
 core size: max 2,5mm
 degree of enclosure: IP 65
 weight: 0.850kg



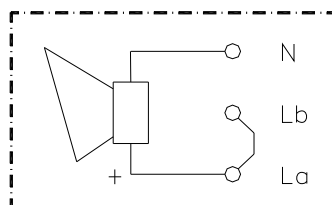
				part no.: 770045					
Rev. A: triple link added, 31.7.2009									
ÄNDERUNG				ÄND.-MITT.	DATUM	NAME			
INDEX	FELD	NAME		le guardian 2025 wall box for reset & buzzer (stage #1 alarm) for open bridge wing					
2003	TAG	NAME							
BEARB.	7.12.	Streit							
GEPR.									
NORM									
				BNWAS WAR 220.2.1.0 ME B					
				AUFTRAG-NR		TYP-A/STAND-E		ART AND	
				-				BLATT: 1	
								VON: 1	



EXTERNAL BUZZER

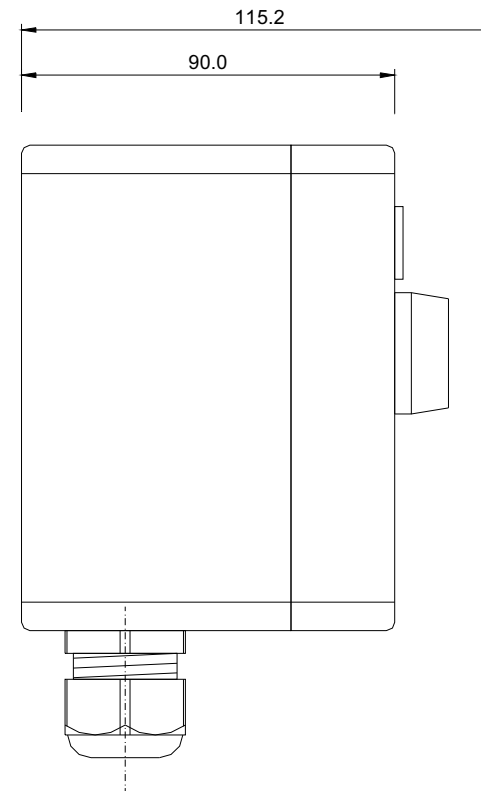
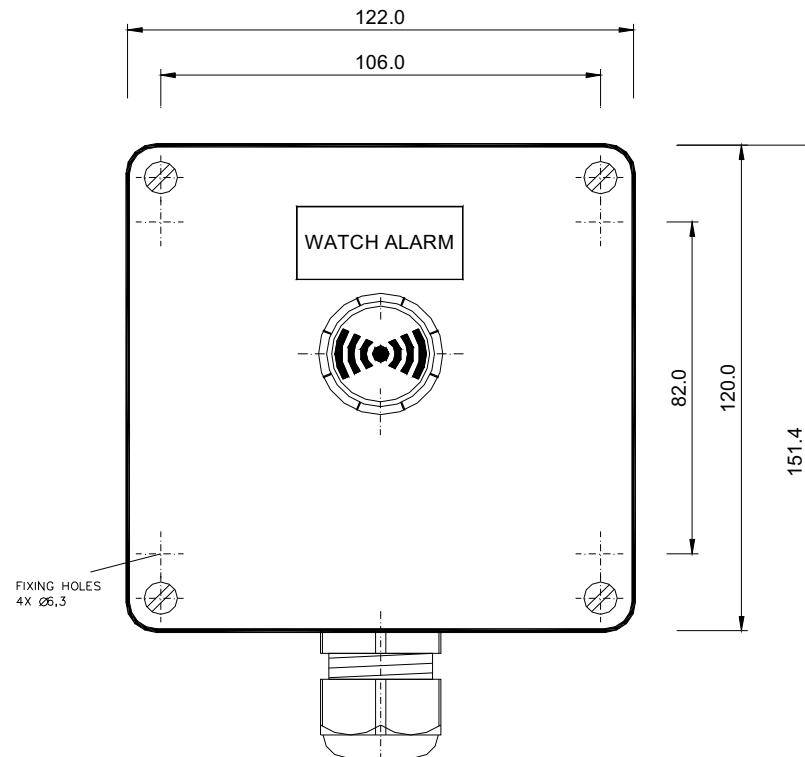
COLOUR BLACK
SINGLE HOLE MOUNTING $\varnothing 22,5\text{mm}$
DEGREE OF ENCLOSURE IP65/IEC529
SOUND PRESSURE 85 dB(A)
CONNECTING TYPE SCREWS
WIRE TYPE 0,5 – 1,5 mm²
WEIGHT 0,030kg

CONNECTION DIAGRAM

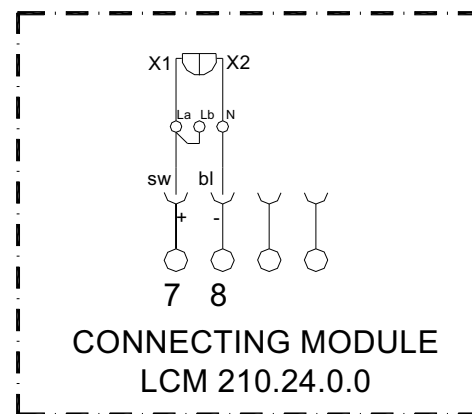



SYSTEM VOLTAGE: 24VDC

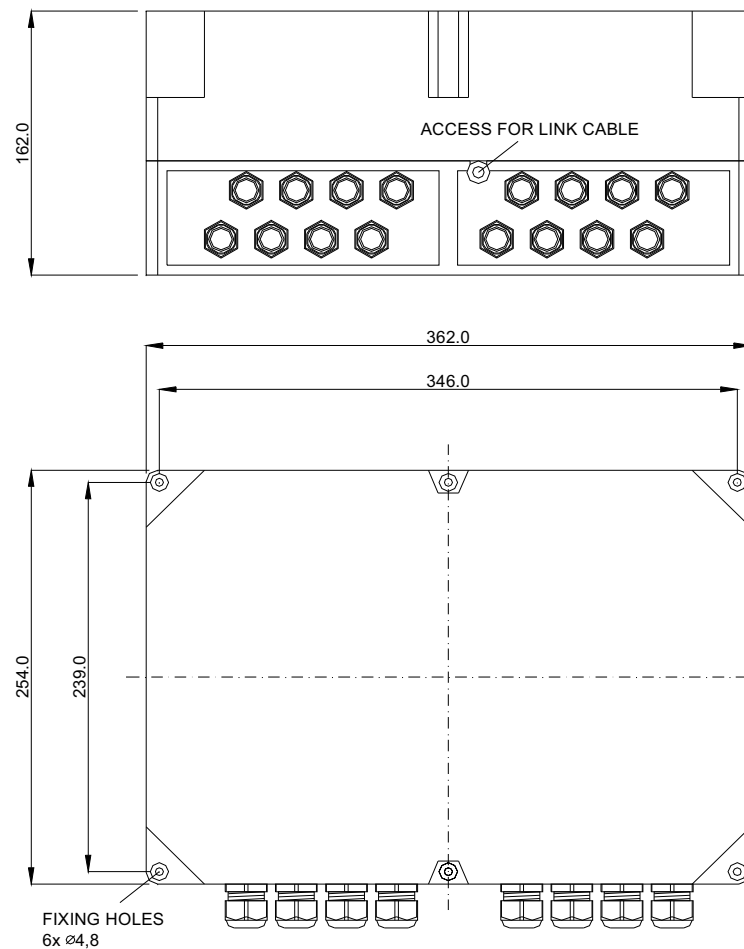
PART No.: 770117



wallbox surface: RAL 7001
 nominal values: 24VDC, 50mA
 cable diameter: 7,5 -17,0mm
 core size: max 2,5mm
 degree of enclosure: IP 65
 weight: 0.750kg



				part no.: 770051				
INDEX	FELD	ÄNDERUNG				ÄND.-MITT.	DATUM	NAME
2004	TAG	NAME						
BEARB.	1.3.	Streit						
GEPR.								
NORM								
		le guardian 2025						
		wall box with buzzer (audible stage #1 alarm)						
		BNWAS WAB 220.1.0.0						
		ME/AS A						
		AUFTRAG-NR		TYP-A/STAND-E		ART		INDEX
				-				
						SHEET: 1		OF: 1

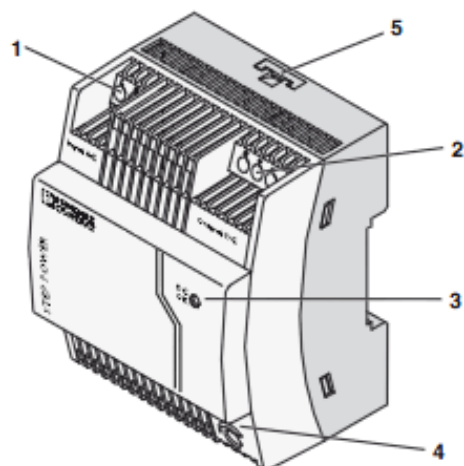


wallbox surface: RAL 7035, ABS
 cable glands: 16 pcs. M20x1,5
 cable diameter: 6,0 -13,2mm
 degree of enclosure: IP23
 weight: 3,3kg

				part no.: 770317			
INDEX	FELD	ÄNDERUNG			ÄND.-MITT.	DATUM	NAME
2010	TAG	NAME	le guardian 2025 wall box for connecting module (LCM), NMEA module, motion sensor module BNWAS WBC 210.1.0.0				
BEARB.	5.3.	Streit					
GEPR.							
NORM							
sm electrics & services				ME	0	ART	INDEX
				SHEET: 1 OF: 1			

WPS220.24.0.0, 100...240VAC / 24VDC, 2.5A Power Supply Unit sme part no.: 770466

5 Structure



- 1 AC input
- 2 DC output
- 3 "DC OK" LED
- 4 Potentiometer 22.5 V DC ... 29.5 V DC
- 5 Universal snap-on foot for EN DIN rails and for wall mounting

	[mm ²]		AWG	[Nm] Torque
	solid	stranded		
Input	0.2 - 2.5	0.2 - 2.5	24 - 12	0.6 - 0.8
Output	0.2 - 2.5	0.2 - 2.5	24 - 12	0.6 - 0.8

Input data

Input nominal voltage range	100 V AC ... 240 V AC
AC input voltage range	85 V AC ... 264 V AC
DC input voltage range	95 V DC ... 250 V DC
AC frequency range	45 Hz ... 65 Hz
DC frequency range	0 Hz
Input fuse, integrated	3.15 A (slow-blow, internal)
Recommended backup fuse for mains protection	6 A (characteristic B) 10 A (characteristic B) 16 A (characteristic B)
Type of connection	Screw connection
Stripping length	6.5 mm

Output data

Nominal output voltage	24 V DC $\pm 1\%$
Setting range of the output voltage	22.5 V DC ... 29.5 V DC (> 24 V constant capacity)
Output current	2.5 A (-25°C ... 70°C) 2.75 A (-25 °C ... 40 °C permanent) 4.4 A (maximum output current)
Type of connection	Screw connection
Stripping length	6.5 mm

11 NMEA expansion module



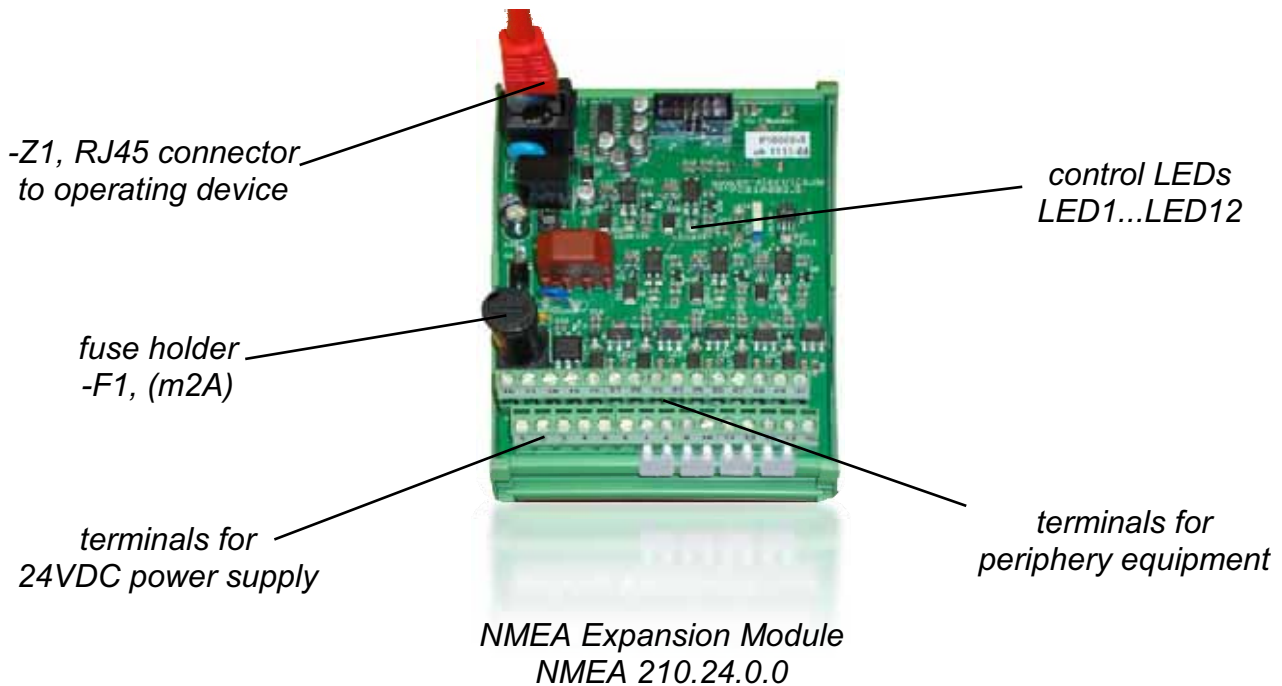
*NMEA expansion module
NMEA 210.24.0.0*

NMEA expansion module (NMEA 210.24.0.0) is designed for the following operations:

- transmit permanently system's mode by sending NMEA sentences acc. IEC 61162-1 to external systems especially VDR for data logging
- receive NMEA sentences acc. IEC 61162-1 from external systems (e.g. radar) to give commands to BNWAS (e.g. reset command of dormant period)
- Master can decide which back-up OOW's cabin shall receive stage #2 alarm (multiple selection is possible, **minimum selection: 2 cabins!**)
- An additional un-delayed push button input is activating emergency call (stage #2 alarm)
- Four binary nc inputs do activate an emergency call (stage #2 alarm) for alarm transfer of unacknowledged nautical alarms (time delay parameter adjust 0...30 sec for each channel)

11.1 NMEA expansion module installation

NMEA expansion module (NMEA 210.24.0.0) has to be connected according to corresponding wiring diagrams.



description

Module has been designed to click on terminal rail TS 35 inside electric cabinet or control console. All periphery equipment (alarm panels, input contacts, power supply) is to be connected directly on NMEA module without any additional terminal board or distribution boxes according to wiring diagram which is part of working drawings. Sample system wiring diagram is shown in chapter "technical data & schematics".

Outputs for stage #2 alarm panels (WAP 220.2.0.0 or WAP 220.5.0.0) are short-cut protected. Maximum output current is 500mA (each output).

Power Supply

It is preferred to feed NMEA expansion module with same 24VDC power supply as connecting module (LCM 210.24.0.0).

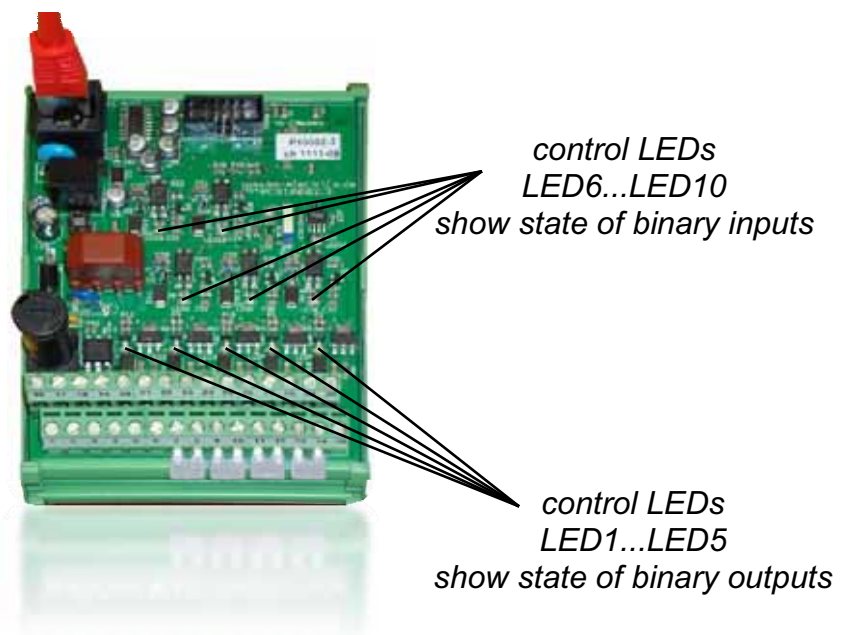
Link to operating device (LOD 210.24.0.0)

Use 3m patch link cable which is part of NMEA expansion module to do serial link between operating device & NMEA expansion module

11.2 NMEA expansion module commissioning

Before switching on 24VDC (nominal) power supply to NMEA expansion module (NMEA 210.24.0.0) on terminal board –X1: 1, 2 (+) & 3, 4 (-) make sure basic system (operating device LOD 210.24.0.0 & connecting module LCM 210.24.0.0) is operating in normal condition.

Diode on NMEA expansion module secures system against wrong power supply polarity.



After connecting 24VDC power supply and link cable to operating device has been connected, system must be switched on for enabling NMEA expansion module.

11.2.1 Enabling NMEA expansion module (service menu #5)

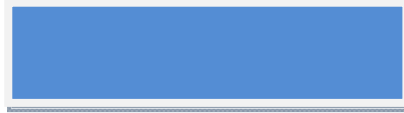
NMEA expansion module (NMEA 210.24.0.0) must be enabled on operating device (LOD 210.24.0.0) for un-locking several NMEA expansion module's operating functions.

display „text 1“

**READY FOR
POWER ON / AUTO**

Do a system shut-down when display is showing “display text 1” by turning key switch S1 on operating device LOD 210.24.0.0 to position “ON/OFF” for longer than 2 sec. System shuts down and operating device’s display is blank.

*system is
shut down*



Then push and keep pushing rotary encoder’s push button S2 and after a period between 13 and 15 sec “switch on” system by turning key switch S1 on operating device LOD 210.24.0.0 one time to position “ON/OFF”. A timer shown on display is supporting this time depending operation.

*2x16 character
illuminated display*



*key switch
S1*

*rotary encoder incl.
push button S2*

*operating device
LOD 210.24.0.0*

So system starts in “service menu 5” and display is showing “text 62”

display „text 62“

**ENTER CODE XXXXX
TO ENABLE NMEAXM**

Move key switch S1 into position “SELECT” and push rotary encoder’s push button one time. Display shows “text 63”.

display „text 63“

**NMEA EXP. MODULE
IS ENABLED**

Move key switch S1 into position “ON/OFF” – system start-up is running an NMEA expansion module has been enabled.

display „text 1“

**READY FOR
POWER ON / AUTO**

To check whether NMEA expansion module has been enabled, move key switch S1 into position “SELECT” and push rotary encoder’s push button S2 two times to reach an additional menu to select back-up officer’s cabin for receiving stage #2 alarm. This menu is available only, when NMEA expansion module has been enabled!

NMEA expansion module is running now and is waiting for user’s operation on operating device LOD 210.24.0.0 or for an external “power on” command. When display shows “text1” NMEA interface starts sending NMEA telegrams. A control LED (LED11) on NMEA expansion module is indicating sending process.

11.2.2 Define quantity of involved back-up OOW cabins (service menu #2)

Person in charge for commissioning has to set right parameter for involved back-up OOW cabins. Allowed number of involved cabins is between 2 and 5 depending on ship’s safety philosophy. This number must be set into parameter settings to avoid unintentional selection of “not existing” back-up OOW cabins. To set right parameter do a system shut-down for reaching “service menu 2” (number of back-up OOW cabins).

Do a system shut-down when display is showing “display text 1” by turning key switch S1 on operating device LOD 210.24.0.0 to position “ON/OFF” for longer than 2 sec. System shuts down and operating device’s display is blank.

*system is
shut down*



Then push and keep pushing rotary encoder’s push button S2 and after a period between 4 and 6 sec “switch on” system by turning key switch S1 on operating device LOD 210.24.0.0 one time to position “ON/OFF”. A timer shown on display is supporting this time depending operation.



So system starts in “service menu #2” and display is showing “text 40”

display „text 40“



Use rotary encoder to adjust right number of involved cabins. Selection between 2 and 5 is allowed and available only.

After right selection has been done, start-up system by moving key switch S1 into position “ON/OFF”.

Definition of involved back-up OOW's cabin quantity is strongly necessary to avoid unintentional selection of non existing cabins!

11.2.3 Define relation between cabin number and real cabin location

Use the following table to define real cabin location and system's cabin numbers:

sample table

	location:	description:	NMEA expansion module terminal no.:
cabin no #1	Deck 5, R. 515	Captain	21 (+), 22 (-)
cabin no #2	Deck 5, R. 524	1 st Officer	23 (+), 24 (-)
cabin no #3	Deck 5, R. 525	2 nd Officer	25 (+), 26 (-)
cabin no #4	Deck 5, R. 526	3 rd Officer	27 (+), 28 (-)
cabin no #5	-	not used	29 (+), 30 (-)

vessel's table

	location:	description:	NMEA expansion module terminal no.:
cabin no #1			21 (+), 22 (-)
cabin no #2			23 (+), 24 (-)
cabin no #3			25 (+), 26 (-)
cabin no #4			27 (+), 28 (-)
cabin no #5			29 (+), 30 (-)

11.2.4 Enabling / disabling alarm transfer channel(s) and time delay adjust for alarm transfer (service menu #3)

NMEA expansion module (NMEA 210.24.0.0) provides 4 binary inputs for automatic alarm transfer of unacknowledged nautical alarms. In case a nautical system (e.g. log system) failed, its fail state nc contact (closed as long as system is in proper condition) can be connected to NMEA expansion module (NMEA 210.24.0.0). When fail state situation has not been accepted by OOW within 30 sec due to incapable OOW or unmanned bridge area, alarm transfer situation occurs and is activating emergency call (stage #2 alarm) via le guardian 2025 BNWAS.

Alarm transfer channels are in operation only, after enabling (channel by channel)!

In case linked nautical system's fail state contact is not delayed (30 sec) a delay period can be adjusted (for each input channel separately). For enabling channel(s) and for time delay adjust use service menu #3.

For reaching service menu #3 do a system shut-down when display is showing "display text 1" by turning key switch S1 on operating device LOD 210.24.0.0 to position "ON/OFF" for longer than 2 sec. System shuts down and operating device's display is blank.

*system is
shut down*



Then push and keep pushing rotary encoder's push button S2 and after a period between 7 and 9 sec "switch on" system by turning key switch S1 on operating device LOD 210.24.0.0 one time to position "ON/OFF". A timer shown on display is supporting this time depending operation.

*2x16 character
illuminated display*

*key switch
S1*



*rotary encoder incl.
push button S2*

*operating device
LOD 210.24.0.0*

So system starts in “service menu #3” and display is showing “text 50”.

display „text 50“

DELAY_TRANSF_AL1
IS DISABLED

Use rotary encoder to enable alarm channel #1 and to adjust delay period between 0...30 sec for alarm channel #1.

Consider! In case linked nc fail state contact is already delayed summarized delay period must not exceed 30 sec!

After delay period has been adjusted move key switch S1 into position “ON/OFF” to leave service menu #3 and to start-up system or push rotary encoder’s push button S2 to select alarm channel #2.

After pushing rotary encoder’s push button S2 display is showing “text 51”.

display „text 51“

DELAY_TRANSF_AL2
IS DISABLED

Use rotary encoder and push button to enable and to adjust delay periods for alarm channel #2, #3, #4 accordingly.

Consider the following relations:

- Alarm channel #1: NMEA expansion module terminals 7 & 8
- Alarm channel #2: NMEA expansion module terminals 9 & 10
- Alarm channel #3: NMEA expansion module terminals 11 & 12
- Alarm channel #4: NMEA expansion module terminals 13 & 14

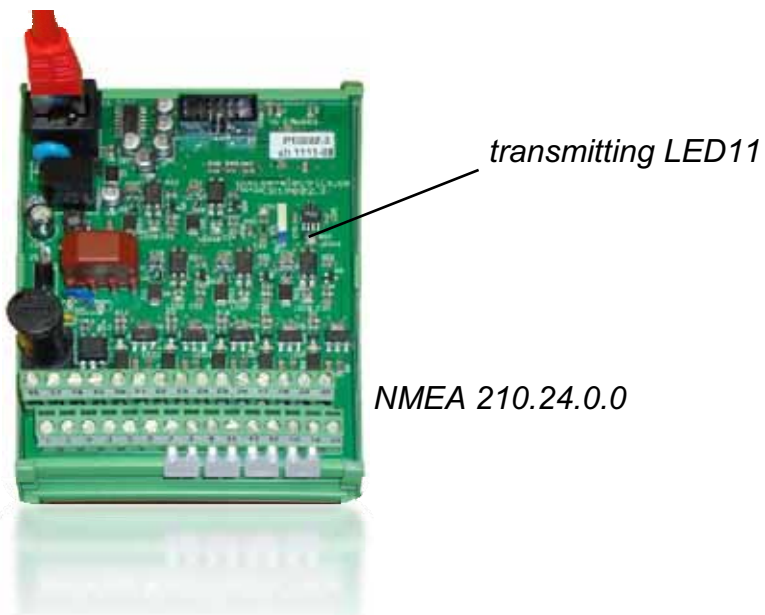
By adjusting delay period below 0 sec display “text 50” is showing and channel #1 is disabled. Now leave this menu by moving key switch S1 into position “ON/OFF” or by pushing rotary encoder’s push button S2.

display „text 51“

DELAY_TRANSF_AL1
IS DISABLED

11.2. Transmit NMEA sentences to external systems (especially VDR)

NMEA expansion module (NMEA 210.24.0.0) is transmitting permanently serial data according standard IEC 61162-1.



After start-up system display "text 1" is showing and transmitting LED11 is flashing (about 3Hz). **Flashing frequency is depending on system's state!**

display „text 1“

**READY FOR
POWER ON / AUTO**

When count-down is running transmitting LED11 is flashing only (1 time) when system's state has been changed (e.g. when pre-alarm occurs).

An external system, especially VDR system, can be connected to terminals 16(A) & 17(B) for data logging.

Serial NMEA data have been designed according to the following structure:

NMEA sentences from BNWAS to external systems (especially VDR)

ALR: operating state after 1st power-on / after system start-up

\$	B	N	A	L	R	,	,	0	0	0	,	V	,	A	,	C	1	=	A	U	T	;	C	2	=	0	3	;	C	3	=	0	*	h	h	C	R	L	F
1						2				3		4	5																6										

- fields:
- 1: Message type: alarm message
 - 2: Reset / start source:
 - 000: start up is reset command
 - LOD: integrated reset button or hardware reset inputs
 - NME: via NMEA interface from external system
 - EXT: via external system (dry contacts, start/stop)
 - 3: Dormant period:
 - A= Dormant period exceeded
 - V= Dormant period not exceeded
 - 4: Alarm situation:
 - A= Alarm situation acknowledged
 - V= Alarm situation not acknowledged
 - 5: BNWAS mode:
 - C1 = AUT, MAN or OFF (bei uns ist MAN wenn Schlüssel auf "SELECT")
 - C2 = Dormant period in minutes (03...12)
 - C3 = Stage alarm; 0, 1, 2, 3
 - 6: CRC

example (after start-up): \$BNALR,,000,V,A,C1=AUT;C2=03;C3=0*hh<CR><LF>

Transmitting of NMEA sentences cannot be stopped or delayed under any circumstances!

11.3. Receive NMEA sentences from external systems

NMEA expansion module (NMEA 210.24.0.0) can receive serial data according standard IEC 61162-1 for remote control of BNWAS le guardian²⁰²⁵



receiving LED12

NMEA 210.24.0.0

Receiving LED is active in steady light after a transmitter has been connected correctly. In case NMEA expansion module is receiving a NMEA sentence (telegram) steady light of receiving LED12 has been interrupted for some milliseconds.

The following control NMEA sentences can be accepted:

EVE (short): switch-on of count-down (dormant period, only possible in "AUTO-MODE")

field length is depending on source's system ID

word length is depending on source's system is																										
\$	-	-	E	V	E	,	,	B	N	W	A	S	,	S	T	A	R	T	D	P	*	h	h	CR	LF	
1							2					3						4								

fields: 1: Message type: Event
2: Event source tag code: BNWAS (sender's view)
3: Event description: Start dormant period
4: CRC

EVE (long): switch-on of count-down (dormant period, only possible in "AUTO-MODE")

field length is depending on source's system ID

field lengths depending on source's system ID																																		
\$	-	-	E	V	E	,	,	h	h	m	m	s	s	.	s	s	B	N	W	A	S	,	S	T	A	R	T	D	P	*	h	h	CR	LF
1					2							3						4							5									

fields: 1: Message type: Event
2: UTC time
3: Event source tag code: BNWAS (sender's view)
4: Event description: Start dormant period
5: CRC

EVE (short): switch-off of count-down

in case count-down has been switch-on by key switch, remote switch-off is blocked!

field length is depending on source's system ID

\$	-	-	E	V	E	,	,	B	N	W	A	S	,	S	T	O	P	D	P	*	h	h	CR	LF
1						2					3					4								

fields: 1: Message type: Event
2: Event source tag code: BNWAS (sender's view)
3: Event description: Stop dormant period
4: CRC

EVE (long): switch-off of count-down

in case count-down has been switch-on by key switch, remote switch-off is blocked!

field length is depending on source's system ID

max length is depending on course system is																																	
\$	-	-	E	V	E	,	,	h	h	m	m	s	s	.	s	s	B	N	W	A	S	,	S	T	O	P	D	P	*	h	h	CR	LF
1						2						3					4					5											

fields: 1: Message type: Event
2: UTC time
3: Event source tag code: BNWAS (sender's view)
4: Event description: Stop dormant period
5: CRC

EVE (short): count-down reset of main period

field length depending on source system ID

field length depending on codes system is																											
\$	-	-	E	V	E	,	,	B	N	W	A	S	,	O	P	A	C	T	I	V	E	*	h	h	CR	LF	
1						2				3								4									

fields: 1: Message type: Event
2: Event source tag code: BNWAS (sender's view)
3: Event description: Operator Activity (OPACTIVE)
4: CRC

EVE (long): Count-down reset of main period

field length depending on source system ID

field length depending on source system ID																	\$	-	-	E	V	E	,	h	h	m	m	s	s	.	s	s	,	B	N	W	A	S	,	O	P	A	C	T	I	V	E	*	h	h	CR	LF
1					2					3					4										5																											

fields: 1: Message type: Event
2: UTC time
3: Event source tag code: BNWAS (aus Sicht des Senders)
4: Event description: Operator Activity (OPACTIVE)
5: CRC

ALR (short): relaease of Em'cy Call without any further delay (stage #2 alarm)

field length depending on source system ID

\$	-	-	A	L	R	,	,	x	x	x	,	A	,	V	,	S	E	T	-	E	C	A	L	L	*	h	h	CR	LF
1							2				3	4	5											6					

- fields:
- 1: Message type: Alarm message
 - 2: Unique alarm number (identifier) from alarm source, e.g. measuring point number (variable Feldlänge)
 - 3: Alarm condition:
 - A = threshold exceeded
 - V = threshold not exceeded
 - 4: Alarm state:
 - A = acknowledged
 - V = unacknowledged
 - 5: Alarm description: SET EM'CY CALL (command)
 - 6: CRC

ALR (long): relaease of Em'cy Call without any further delay (stage #2 alarm)

field length depending on source system ID

\$	-	-	A	L	R	,	h	h	m	m	s	s	.	s	s	,	x	x	x	,	A	,	V	,	S	E	T	-	E	C	A	L	L	*	h	h	CR	LF
1							2										3				4		5		6											7		

12 user manual short version (for users only)

le guardian ²⁰²⁵ Watch Alarm System acc. MSC .128/75 & IEC 62616 (Bridge Navigational Watch Alarm System, BNWAS)

12.1.0	Generals	62
12.1.1	Installation	63
12.2.1	Manual switch on	63
12.2.2	Automatically switch on	64
12.3.0	Select dormant (main) period	64
12.3.1	Reset of dormant (main) period	64
12.3.2	Alert sequences start automatically	65
12.3.2.1	visual alarm indications (pre-alarm)	65
12.3.2.2	Alarm stage 1	65
12.3.2.3	Alarm stage 2	66
12.3.2.4	Alarm stage 3	66
12.4.1	Back-up OOW's selection & indication	67
12.5.1	Emergency call	67
12.6.1	System shut down.....	70

12.1.0 Generals

The purpose of a bridge navigational watch alarm system is to monitor bridge activity and detect operator disability which could lead to marine accidents. The system monitors awareness of the Officer of the Watch (OOW) and automatically alerts the Master or another qualified person if for any reason OOW becomes incapable of performing OOW's duties.

This purpose is achieved by series of indications and alarm to alert first the OOW and, if he is not responding, then to alert Master or another qualified person. Additionally, the BNWAS provide the OOW with means of calling for immediate assistance if required.

This user manual (short version) is made for persons who know basic standards of watch alarm system. All time period reset inputs are protected against permanent reset.

12.1.1 Installation

After operating device LOD 210.24.0.0 and connecting module LCM 210.24.0.0 are installed according to technical documentation by authorized personnel, system has to be supplied by 24VDC battery power supply (terminal board -X1: 1, 3). Potential free n/o failure contact (connecting module –X1: 5, 6) closes and system is ready for switch on. After a short display intro display on operating device is showing “text 1”.

display „text 1“

READY FOR
POWER ON / AUTO

12.2.1 Manual switch on

Authorized person (Master) switches on system by single turning key switch –S1 on operating device to position “ON/OFF”. System’s running is indicated by activating last selected **dormant** (main) period and count-down is active as shown on display “text 2”.

display „text 2“

COUNT-DOWN
*** 2:59 ***

*2x16 character
illuminated display*



*key switch
S1*

*rotary encoder incl.
push button S2*

*operating device
LOD 210.24.0.0*

If **dormant** (main) period (3... 12 min) shall not be changed, authorized person (Master) pull off the key. **Dormant** period is counting down from the moment that system has been switched on.

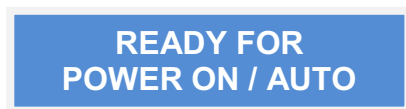
Dormant period is period within OOW is monitored but no further alert is triggered.

12.2.2 Automatically switch on

System can be switched on by external systems via potential free steady n/o contact which has to be connected on connecting module LCM 210.24.0.0 –X1: 29 & 30.

Automatic switch on is possible only in automatic mode - when display is showing "text 1".

display „text 1“



In case automatic switch on shall not be possible, master has to shut-down system (see chapter 5.1 System shut-down)

12.3.0 Select dormant (main) period

In case that authorized person (Master) demands to select other dormant period, person has to turn key switch S1 on operating device to position "SELECT". In this position only dormant period can be chosen by using rotary encoder S2 on operating device. Display is showing "text 3".

display „text 3“



By turning rotary encoder S2 in clock wise direction, value is increasing. By tuning rotary encoder S2 in counter clock wise direction, value is decreasing. Possible main period value is limited between 3 and 12 min. Step width is 1 min. By turning key switch S1 into centre position, system accepts new value and count-down starts from the moment the key has turned into centre position. Authorized person (Master) can pull off key only in centre position.

Dormant (main) period (3... 12 min) shows after which period automatically generated alert sequences will be triggered. (see time table, page 20)

12.3.1 Reset of dormant (main) period

As a rule monitored person (OOW) resets dormant period by pushing illuminating push buttons or rotary encoder's integrated push button S2 on operating device

during his actual work on bridge area. Every reset is re-starting complete count-down independent of its moment. To serve rules of ergonomics several reset units should be placed on strategic locations on bridge and bridge wing area. These reset units are maximum sized illuminated push buttons as well as loud electronic sounder which have been connected on connecting module LCM 210.24.0.0

12.3.2 Alert sequences start automatically

12.3.2.1 visual alarm indications (pre-alarm)

If dormant (main) period is over without OOW's reset, system activates all illuminated reset units by 1Hz flash light. This sequence is calling "pre-alarm". Display is showing in 1Hz toggle mode display "text 12" and "text 13".

display „text 12“



display „text 13“

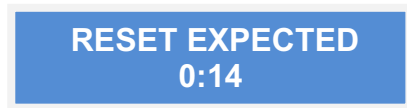


All illuminated push buttons and display on operating device are centralized dimmable via rotary encoder S2 on operating device. Minimum illumination is fixed.

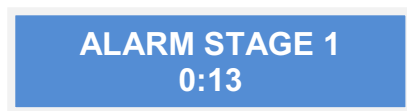
12.3.2.2 Alarm stage 1

If dormant (main) period and pre-alarm period (15 sec) are over without OOW's reset, system activates internal electronic buzzer as well as additional buzzers located on bridge or bridge wing area. This sequence is calling "alarm stage 1". Display is showing in 1 Hz toggle mode display "text 14" and "text 15".

display „text 14“



display „text 15“



Alarm stage 1 is triggered to pay attention to monitored OOW. Sound characteristics and sound volume are adjustable (see user manual chapter 8 Adjust buzzer characteristics & volume). One additional potential free (dry) n/o contact is closed now for further use as well as for VDR link. (Additional buzzers or alarm devices can be connected directly on connecting module.)

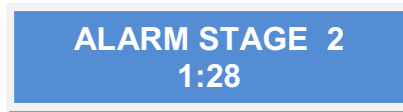
12.3.2.3 Alarm stage 2

If dormant (main) period, pre-alarm period (15 sec) and alarm stage 1 (15 sec) are over without OOW's reset, system activates alarm stage 2. Display on operating device is showing in toggle mode display "text 16" and "text 17".

display „text 16“



display „text 17“

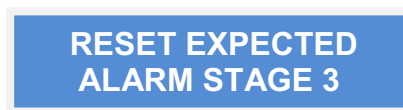


One additional potential free (dry) n/o contact is closed now for further use as well as for VDR link. Optic / acoustical alarm devices in officer's area (cabins or staircase) are activated. In case software selector switch is involved (see 11.x.x.x) alarm devices in selected back-up OOW's cabins only are activated!

12.3.2.4 Alarm stage 3

If dormant (main) period, pre-alarm period (15 sec), alarm stage 1 (15 sec) and alarm stage 2 (90... 180 sec) are over without OOW's reset, system activates alarm stage 3. Display on operating device is showing in toggle mode display "text 18" and "text 19".

display „text 18“



display „text 19“

**ALARM STAGE 3
RELEASED**

Two potential free (dry) n/o contacts on connecting module are closed now for alarm stage 3 trigger (very loud alarm devices in officer's area or public area) as well as for VDR link.

12.4.1 Back-up OOW's selection & indication

le guardian 2025 system can be updated with back-up OOW's cabins software selector switch. For using this feature NMEA expansion module 210.24.0.0 has to be installed and enabled. During commissioning work firm technician / engineer has defined and reported (see chapter 11.2.2 Define quantity of involved back-up OOW cabins (service menu #2)) how many back-up OOW's cabins are involved for alarm stage 2 activation. That means master can decide into which back-up OOW's cabins alarm stage 2 has to be transferred or not.

For that authorized person (Master) moves key switch S1 on operating device to position "SELECT". After pushing rotary encoder's push button S2 display is showing display "text 28"



display „text 28“

**BACK-UP_OOW_No.1
ON_DUTY: ***ON*****

*Stage 2 alarm is active in
Cabin No.1*

By turning rotary encoder cabin of back-up OOW No.1 can be switched on "ON" or switched off "OFF". This selection can be repeated as many as back-up OOW's cabins are involved (minimum 2 cabins, maximum 5 cabins).

display „text 29“

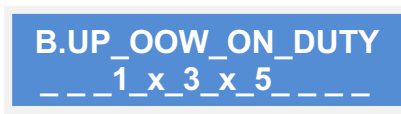


*Stage 2 alarm is **not** active
in Cabin No.1*

Selection overview

To check which cabins have been selected for alarm stage 2, start count-down and wait for 5 sec. Then display is showing e.g. the following selection:

display „text 49“



Authorized person (Master) and later on OOW can check / recheck after each count-down reset, cabin selection. Display "text 49" shows cabin No.1, No.3 & No.5 have been selected to receive alarm stage 2. Cabin No.2 & No.4 are not selected!

Notice! Software makes sure minimum one cabin has been selected!

When alarm stage **3** is activated, every back-up OOW's cabins alarm device is active regardless of its selection state!

12.5.1 Emergency call

Monitored OOW is able to generate an emergency call...

...by pushing any reset unit longer than 5 sec.

That activates without delay alarm stage 2 and subsequently alarm stage 3 later on.

Display on operating device is showing in toggle mode display "text 20" and "text 21".

display „text 20“



display „text 21“



Notice! Emergency Call feature is not activated when system is shut-down!

see chapter 11.5.1 System shut-down.

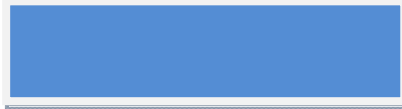
Emergency Call reset is possible by pushing any reset unit longer than 2 sec.

12.6.1 System shut down

If system is not in operation and external automatic “system on” should not be possible, Master is able to shut down system by turning key switch S2 on operating device for longer than 2 sec to position “ON/OFF”.

System and display shut down and system ignores all external inputs now.

*system is
shut down*



Notice! When system is shut-down no emergency call is possible!

